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Textile Research: As Seen from the Outside

JUST as a parent is hardly qualified to pass impartial judgment on the character of his child, so textile manufacturers can not properly evaluate the status of research in their industry. The former must seek the opinion of the neighbors and of a child psychologist; the latter must study other industries and must enlist the advice of fundamental scientists.

To Maurice Holland, of the National Research Council, we are indebted for such an outside viewpoint. At a recent meeting of Committee D-13, he acted as the medium through which a physicist, a chemist, a mechanical engineer, and a Government official passed judgment on textile research — and indicated lines of future action.

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The physicist is Dr. Karl T. Compton, president of M.I.T.—and a physicist in starting to investigate textiles, says Dr. Compton, would do in this field just what he has done in the field of the properties of matter, namely, go gunning for the elementary units of which the matter is composed and try to determine their properties; then attempt to interpret the properties of the matter in bulk, in terms of the properties of its component elements. In applying this to textiles, he would concentrate his attention not upon the cloth but upon the yarn of which the cloth is composed. He would examine the yarn to determine of what type of cellular structure it is composed. In cotton, for example, this would lead him to an investigation of cellulose cells and the binding material which holds them together. His most powerful tools would probably be the X-ray and the electron, says Dr. Compton.

Now the chemist speaks. Discussing cotton specifically, Dr. Arthur D. Little, of Cambridge, Mass., says that the time has gone by for the cotton manufacturer to consider cotton merely as a collection of fibers. It is a chemical entity with all the capacity for change which the fact implies. As such, it richly deserves the respectful consideration of the textile manufacturer. Each addition to our knowledge of the chemistry of cellulose has almost invariably led to the establishment of great new industries, such as rayon, Cellophane, Duco lacquers, smokeless powder, photographic films, etc.—and yet, states Dr. Little, the cotton textile industry continues to regard cotton merely as a fiber and so deals with it along unscientific lines, ignoring the chemical possibilities which might be developed from it through research. . . . A serious indictment.

A mechanical engineer, William L. Batt, president of SKF Industries, Inc., obtained the opinion of Prof. Elliott Dunlap Smith, who believes that the textile industry varies from outstanding excellence in research to almost incredible absence of research united with ignorance of scientific manufacture. In the first class, he mentions the work done by Crompton & Knowles Loom Works, Draper Corp., Cotton Research Co., and Kendall Mills (with the aid of Sidney Paine) as examples. On the second class, he is courteously silent.

Finally, a good friend of the industry, E. T. Pickard, of the Department of Commerce, says that research work in textiles has been pale and anaemic in comparison with many other industries. He invites consideration of the possibilities of material economic improvement over a period of years if the textile industry were much more generous in its spendings for research work. He strikes a hopeful note by mentioning that, during the last year, there has been indication that real interest and support in research are to be realized, and refers specifically to the establishment of the U. S. Institute for Textile Research, and to the Textile Foundation.

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Mr. Holland asks a question: Is there any reason why the textile industry should not have a continuous process of manufacture such as that which revolutionized the iron and steel industry?

The only reason we can think of is failure to utilize the help of the physicist, the chemist, and the mechanical engineer, in the investigation of the fundamentals of textile raw materials and technique.

And, as Mr. Pickard states, there is evidence that such failure may be averted. But there must first be a far greater measure of interest and support from the industry at large than exists today.

The Week in Textiles

as Reflected in This Issue

General

Duties of "Fashion Analyst"

The duties of a fashion analyst are to keep his (or her) company so informed that it may be sure to be in on the upswing of a fashion trend. How this may be done is described. *(page 41)*

Finding Twister Twist Gear

The mathematics required for finding the desired twist gear of a dolly roll-trap cap twister are carefully explained. *(page 49)*

Fallacy of Selling at Loss

Fallacious conclusions regarding selling part of production at a loss to support full time in a mill which can sell the other part of its production at a profit are nailed by Sydney P. Munroe, of Cotton-Textile Institute. *(page 74)*

Cotton

Weave-Room Calculations

A complete system of cloth calculations is offered. Many short cuts are possibly here published for the first time. *(page 34)*

State Legislation

To protect the majority against disastrous competition from the minority of cotton mills that insist on the night shift, 80% of the productive equipment of South Carolina mills was represented in a petition that the legislature enact laws prohibiting the employment of women, and minors under 18 years of age at night. *(page 37)*

Clothing Cards

Instructions are given for cutting tapers in card fillet. Inside tapers are recommended. *(page 48)*

Perhaps Lower Cotton

Pending new crop developments, the cotton market is likely to trend somewhat lower, says Dr. L. H. Haney in TEXTILE WORLD Analyst. He finds evidence of a rounding off in cloth sales and prices and an increasing surplus of American cotton. He calls the statistical improvement in the cloth position and increased exports of cotton the most tangible bullish items. *(page 55)*

Cotton Watches Farm Board

Uncertainty as to Federal Farm Board policies resulted in easing of the cotton market. Considerable trade support appeared at the first recession, but the market later turned dull. *(page 59)*

Upholstery Strike Hurts Yarns

Absence of demand for carded weaving yarns from Philadelphia upholstery mills, whose workers are out on strike, is being felt by cotton yarn spinners. Shipments of 30s-2 warps, their popular count, have fallen off. *(page 59)*

March Fair Cotton Goods Month

Sales of print cloths in March will not come up to the volume of either January or February; but was fair to good with largest sellers. Month was marked by further depletion of stocks. Prices firm for nearby. *(page 65)*

Night Work Policy in Effect

Decision to discontinue night employment of women and minors in cotton mills is not paper progress; it is accomplished fact. Reports to date indicate that 92% of the mills which subscribed to the Institute's recomendation have already put this policy into effect; percentage expected to rise. *(page 71)*

Soviet Cotton

Soviet cotton is selling in Liverpool at ½c. under equivalent American cotton according to report and the 1931 Soviet acreage is said to indicate a 3,500,000 bale crop. *(page 72)*

Wool

Botany Worsted Modernizes

Radical re-equipment of the Botany Worsted Mills, which has aroused interest throughout the length and breadth

The Textile Outlook

AFTER the current period of digestion (which has been referred to before in recent weeks) is likely to come a period of testing. If the industry's markets make a good showing, stability through the spring is assured. Buyers whose nearby needs are covered will do all they reasonably can to get their next batch of goods on a more favorable basis. The deflationists have not all turned bulls. The degree of resistance the markets exhibit will be a direct determinant of the degree of buyers' confidence. And again—the product which is conservatively produced and not overstocked in first hands will reap benefit of the next buying movement . . . Cottons were less active in March than February but the statistical position is well maintained. Fall lines in wool goods are heavily sampled but lightly ordered, indicating buyers' continued caution. As stocks decline full-fashioned hosiery strengthens. Other knit goods are steady, and fairly well supported. Silks are still suffering from the setback following their early and somewhat overdone recovery of a few months back.

The Business Outlook

THE beginning of the second quarter brings no break in the monotonous movement of business along the bottom on which it has been bumping for five months. The spring stimulus has been scarcely more than seasonal, and our index, after allowance for this factor, so far shows no certain sign of rise from a level about 20% below normal. Steel has lost a little of its momentum, as it usually does after March, and automobile output is increasingly cautious. But electric power production reflects a slow growth in general industrial activity, construction is encouragingly active, and carloadings suggest an increasing movement of merchandise for spring trade. Best of all, the drought is routed and crops are promising. But declining stock and commodity prices, weakening bond markets and chronic credit contraction show continued lack of business and banking confidence here and abroad.—*The Business Week.*

of the textile industry, has been conducted logically and after careful study. Intentions are to keep a re-mechanization committee functioning. *(page 32)*

Bleaching Wool

Chlorination of wool imparts a yellowish coloration to the fiber and increases its affinity for some dyestuffs. Addition of a protective colloid to the bleaching solution and dye bath has been found beneficial. *(page 48)*

Tape Condenser

A new tape condenser for woolen and waste cards has been placed on the market. *(page 51)*

Carpet Loom

A particularly wide and heavy loom built for one of the larger carpet manufacturers is equipped with individual motor drive and control. *(page 52)*

Wool Market Encouraged

Continued strength in foreign centers is encouraging to the raw wool market. The upturn in finer sorts is improving the position of medium and coarser wools. *(page 61)*

Worsted Yarns Are Steadier

Higher prices quoted on Australian wools have hardened finer count worsted yarns and helped the whole market. Demand for weaving counts is quiet; outerwear spinners are rushed to make delivery to bathing-suit mills. *(page 61)*

Men's Wear Season Developing

Opening of men's wear fancies has completed showings for the fall season and sellers are waiting for business to develop. Low prices may mean early buying but majority feel conservatism means another "late" season. *(page 65)*

Wool Institute Engages Counsel

The Wool Institute has engaged Gilbert H. Montague as general counsel. Mr. Montague also serves other trade bodies and he stresses the value of collection and dissemination of trade data on past transactions and the adoption of codes of ethics. *(page 72)*

Knitting

Three Colors for Half-Hose

A new hosiery-machine attachment produces spiral patterns in yarns of two colors against a background of another color. *(page 51)*

Hosiery Dyeing

More uniform results in dyeing hosiery and other fabrics are said to result from the use of a feeding device which enables the operator to feed dissolved dyestuff to any part of the dyeing machine at any rate of speed. *(page 52)*

Full-Fashioned Hose Output Less

Persistent curtailment of production of women's full-fashioned hosiery is beginning to show results in Bureau of Census figures; the Bureau reports February output was 361,437 doz. pairs, against 383,094 in January. *(page 66)*

Moderate Swimsuit Call

Swimsuit demand at present is behind this time last year, and producers look for high-pressure buying in May, if weather is warm. Other outerwear lines, especially spring sweaters, show activity. *(page 66)*

McCullaugh Joins Berkshire

John Nash McCullaugh, managing director of National Association of Hosiery & Underwear Manufacturers, resigns as of May 1 and joins Berkshire Knitting Mills as general manager. *(page 73)*

Silk

Raw Silk Sluggish

Sharp decline in demand from broad-silk weavers has weakened raw silk market, and prices sag. *(page 63)*

Silk Yarns Quiet

Both spinners and throwsters have difficulty in moving stocks; thrown silk outlook uncertain, but spinners expect active reordering soon. *(page 63)*

Heavy Losses on Prints

The recent rush to clear spring printed fabrics, which precipitated much price-slashing, has brought heavy loss to numerous medium and small-size mills. *(page 65)*

Rayon

Rayon Problems of Europe

Blind competition and overproduction are called the chief rayon problems of Europe in a condensed analysis of the situation abroad. The object lesson may help in guiding our domestic market. *(page 45)*

Rayon Activity Cuts Stocks

An active market for rayon with some producers selling 48 to 60% in excess of output is resulting in reduction of rather burdensome stocks. The trade estimates current stocks in first hands at 15,000,000 lb. against at least 25,000,000 lb. at the first of the year. *(page 63)*

Processing

Reducing Steam Pressure

Selection of equipment for reducing steam pressure for heating and process work in textile mills is no small problem. Use of pressure-reducing values of the proper types and employment of non-condensing turbines offer a solution to problem. *(page 38)*

Temperature Control

To insure uniform results, correct temperatures must be maintained in bleaching, dyeing, and finishing operations. Various types of temperature-recording and control instruments which eliminate guesswork in processing cotton raw stock, yarn, and fabrics, are described. *(page 42)*

Finishing Narrow Fabrics

Modern practice in finishing narrow fabrics is to use as few ingredients as possible in the sizing bath. Typical formulas are given. *(page 50)*

Aromatics for Textiles

Three new aromatic oils have been introduced which may be used in conjunction with finishing oils to overcome the rancid odor which sometimes develops in finished yarns or fabrics. *(page 53)*

Emulsifying and Spraying Unit

Equipment for emulsifying, metering, and spraying oils, emulsions, and suspensions on wool, silk, rayon, and other fibers has been announced recently. *(page 53)*

It's a Good Trick—If You Can Do It

SOUND-THINKING manufacturers, who know their costs, have told us frankly that they take orders on certain of their products at a loss, in order to absorb part of the overhead on machinery which might otherwise be idle. The remaining products, representing the bulk of their output, are sold at a profit—and that profit, they feel, is further assured, if the above-mentioned practice is followed.

As Sydney P. Munroe, manager of the Cost Section of The Cotton-Textile Institute, states in a letter to cotton mill executives, printed on page 72 of this issue, this may appear at first glance to be a shrewd business move. But, unfortunately, an individual manufacturer can't patent the process—and it becomes more or less general practice. Some other mill will try it on the products which you are best able to make and sell at a profit, The result is the type of market demoralization with which textile manufacturers have acquired an expensive familiarity.

Thus far, no method has been devised which makes it permanently safe for any manufacturer to sell any part of his product at a loss.—*Editor.*

STAGING THE FIGHT AGAINST

Botany Worsted Mills

Sets Example in Logical Modernization

Interview by J. A. AUSTIN *with*
Re-Mechanization Committee
Botany Worsted Mills

THERE may be said to be three steps in a modernization program. The first is the will to modernize; the second is a method of investigating and deciding upon replacements; the third is the disposal of the replaced machinery.

Colonel Charles F. H. Johnson, president of the Botany Worsted Mills, Passaic, N. J., has amply demonstrated the will to modernize. It is his policy to give the production department the proper tools to work with, and he backs up this policy by purchasing any replacements which can be proven economically sound. With such an attitude it is incumbent upon the production department to see that manufacturing is on an efficient basis and to offer no alibis for out-moded equipment. Few will call 1930 a year conducive to optimism, yet Botany, in pursuance of the policy of its president, courageously spent approximately $1,000,000 in re-equipping during 1930. Previous to that year about $300,000 had been spent in bringing the finishing department up to the minute. Further, it is planned to carry modernization forward continuously.

The re-mechanization committee is the medium utilized to carry out the second point mentioned; namely, investigation of, and decision upon, the actual problems of replacement. Another enlightened policy covers the disposal of the replaced machinery. All replaced machinery is placed under the sledge hammer. It is sold, but it is sold as so much broken metal and wood.

With responsibility placed directly upon the production department, it is essential that the problems of modernization receive careful attention, both from the standpoint of assuring a thorough hearing for all worth-while new equipment and with a view to insuring against the hasty adoption of something merely because it is new. With this end in view the re-mechanization committee was set up with the specific duty of studying equipment problems and of making such recommendations as the evidence warrants.

The membership of this committee is comprised of Chairman F. A. Burghardt, manager of men's wear division; Fred Haltmayer, general manager; F. R. Edington, wool buyer (these three are members of the management committee); Otto E. Kuhn, best described as Col. Johnson's right-hand man; John Hendry, in charge of automatic weaving; Kuno Von Eltz, chief engineer; and C. F. H. Johnson, Jr., who serves as secretary of the committee.

The first responsibility of the committee is to keep in touch with the latest trends in equipment both in this country and abroad. Individual members of the committee may bring up subjects for discussion and study, and anyone else connected with the organization who sees possibilities in certain equipment is assured of a hearing. With such an arrangement little escapes observation in the domestic machinery market, and close watch is kept upon developments abroad. When such developments warrant, arrangements are made for one or more members of the organization to visit European countries for the purpose of conducting first-hand investigations of the equipment under consideration.

The actual assemblage of data upon which decisions are based is carried out by the members of the committee, individually and collectively, and all means of collecting pertinent information are utilized. Where the machinery under consideration is operating in another mill, visits are paid to that mill, where possible, and operation checked with the executives and engineers. The policy of Botany is to welcome visits from other mill men who are interested in the problems of modern equipment, and it has been the experience of committee members that practically all progressive mills have a similar open-minded policy, with little of the distrust and secrecy which were prominent in the old days.

Where feasible, a trial unit is often installed in the plant, and members of the re-mechanization committee also visit and study such units if they are installed else-

Some of the new high-speed automatic looms in place at Botany Worsted Mills

WEAR AND OBSOLESCENCE

Yard of the Botany Worsted Mills, showing some of the 1600 scrapped looms

where, either in the plant of the machinery builder or in another mill. In a similar manner the development of machinery which is still in the experimental stage is followed. Time studies necessarily form an important part in all the investigations, and they are carried out by specialists.

Repair records also form a mass of valuable data in considering the economics of replacement. Records are kept for each machine individually, or in groups where similar machines were purchased at the same time. These records include all items of expense, such as labor, overhead, and parts; and, in addition, there is an idle-time account which shows up the loss in production occasioned by repairs. This item of time lost in repairs receives particular consideration in such branches where a shut-down would occasion relatively large losses in production. At times new equipment is regarded as insurance.

When information has been collected from all the sources mentioned, the particular re-equipment problem under consideration is taken up at a meeting of the re-mechanization committee. Members of the committee have studied the data, and, after any further discussion which may come up at the meeting, a vote is taken. The committee as a group has no set figure of the return which a new machine must give on the investment and, with so many factors of quality, etc., to be considered, individual members do not cling to any hard and fast rule. The general opinion, however, may be said to be that a new machine should carry the depreciation and obsolescence charges which may reasonably be expected and then pay a fair return on the investment. For example, the flexible rule of one member of the committee is to require the new equipment to carry 10% depreciation and then show a 10% return on investment.

The committee agrees that the factor of obsolescence, which has increased to such an extent of late years makes it necessary to give careful consideration to write-offs, even though Government regulations do not allow much leeway in accounting. No actual fund is set up as a depreciation reserve, although it is pointed out that such a procedure is sound under the financial conditions which obtain in some mills.

In actual operation the re-mechanization committee has covered a wide range and has made important recommendations which have been translated into action by Colonel Johnson. The most dramatic move has been the complete re-vamping of the weaving equipment. Previous to 1930 Botany had less than 100 automatic looms. Sensing distinct savings in the cost of weaving and less waste through the use of modern looms, the re-mechanization committee studied the problem from every angle. For the particular class and type of work which Botany produces, exhaustive figures proved the economy of installing high-speed automatic worsted looms, and the committee vote was unanimous. Accordingly some 1,600 looms of the old type are being thrown out. No increase in production is contemplated, but rather replacement by a smaller number of new, high-production looms. The largest savings are due to the fact that six of the new looms can be operated by a weaver against two of the old, the new loom is capable of operation up to 150 picks per minute, and the power and supervisory items are smaller due to the smaller number of looms necessary.

The work of the re-mechanization committee did not stop with the purchase of the looms, but rather has continued uninterrupted and the functions of the committee are looked upon as continuing ones. At the present time various other changes are under consideration, notably the installation of electrical stop motions and improved methods of warp preparation along the lines of high-speed warpers with yarn running from cheeses.

Investigations are under way on the advisability of re-vamping the scouring and drying, the installation of wide cards, and the addition of new jack mules and rings. All new machinery is installed with an eye to straight-line production. Decision on these items awaits the completion of studies; and, in addition, various other projects are contemplated.

Botany has tackled the problems of an efficient plant in a logical manner and has backed up the will to modernize by a method of handling investigations which insures adequate consideration and sound judgment. Not the least interesting feature is the attitude toward old machinery. As pointed out, replaced machines are junked. The machines which are thrown out are admittedly not efficient, but in the opinion of the management no chances should be taken with those optimists who might be tempted to buy up such machinery and set it in place, thus hurting market conditions until the fallacy of buying junk equipment—no matter at what price—became apparent even to the optimists. Junking at Botany means actual and final doom as a productive unit.

Weave-Room Calculations

I Have Found Rapid and Accurate in Practice

By James W. Shea

◆*Many of the vertical wrinkles in mill men's foreheads and much of their gray hair may be laid directly to weave-room calculations. There is, however, a great variety of methods used for such calculations, some long and some short, and those who go the longest way around may be taxing themselves unnecessarily.*

The author of the accompanying article generously outlines the methods which he has found most satisfactory in practice. It would be well for weave-room calculators to compare their methods with his, as it is possible they will find their own procedure in certain cases more difficult—and perhaps less accurate. Many of his short cuts, Mr. Shea believes, are here published for the first time. Although his recommendations are primarily for cotton fabrics, the principles upon which they are based are applicable to all woven materials.
—Editor.

MANY problems requiring mathematics for solution confront the superintendent and overseer of weaving, especially in mills in which changes from one style to another are the rule rather than the exception. One may look back to the time when patterns of a certain character would remain in the same looms for months without any change. Looking over the same ground today, we find, instead of large orders taking care of 50 or 100 looms continually, a few looms on one pattern, a half-dozen on another style, and so on through the room. It is often the case that only one warp is used up in a loom. This state of things renders the task of the weaver anything but an easy one. In such cases a system of rules and formulas that has been thoroughly tried and tested greatly facilitates the work and enables the overseer to obtain the required results both correctly and rapidly.

When figures are wanted, they must be supplied without delay. It is a fact, which few will care to dispute, that the multiplicity of things which mill superintendents and overseers have to attend to in some of the larger plants is enormous, and that the one who can give the required information promptly and correctly is the one who is mostly valuable to his employer.

In getting out estimates of samples of new goods, one must be able to determine correctly the following: average number of yarn, yards per pound of average number of yarn, warp ends in reed, width of reed, reed filling contraction, weight of filling per yard, picks per inch less contraction, warp contraction, weight of warp per yard, percentage of warp per yard, and percentage of filling per yard.

Taking an Example

The following is a fabric construction taken at random: 56 × 60 × 40 — 360. Warp yarn is 21.5; filling yarn, 26.

Various rules for finding the *average number of yarn* are in use, but the following has the merit of being based on reason, and therefore of correctness: Divide warp ends per inch by number of warp and divide picks per inch by number of filling; then divide total of ends and picks by total of quotients just obtained. Thus:

$$56 \div 21.5 = 2.605$$
$$\frac{60 \div 26. = 2.308}{116 \quad \div \quad 4.913} = 23.61 = \text{average number of yarn}$$

Another good rule for the same thing is the following: Add warp ends and picks of filling in one square inch of the fabric; multiply this by the number of the warp and again by the number of the filling for a dividend. Now multiply warp ends per inch by number of filling, and picks per inch by number of warp. Add the two results together for a divisor. The quotient is the average number of yarn, thus

$56 + 60 \times 21.5 \times 26 = 64{,}844$
$56 \times 26 = 1{,}456$
$60 \times 21.5 = 1{,}290$
$1{,}290 + 1{,}456 = 2{,}746$
$64{,}844 \div 2{,}746 =$ 23.61 average number of yarn

This average number, multiplied by the yards in a hank, equals the *yards of 23.61 yarn to one pound*. Thus, 23.61 × 840 = 19832.4 yd. per pound.

Ends per inch in reed may be found by the following method: Square the warp ends per inch, and multiply by the yards per pound for a dividend. Add the square of the warp ends per inch to the yards per pound for a divisor. The square root of the result is the ends per inch in the reed. Thus:

$$56 \times 56 \times 19832.4 = \frac{62{,}194{,}406.4}{22{,}968.4} = 2707.8249$$
$$\sqrt{2707.8249} = 52.03 \text{ warp ends per inch in reed}$$

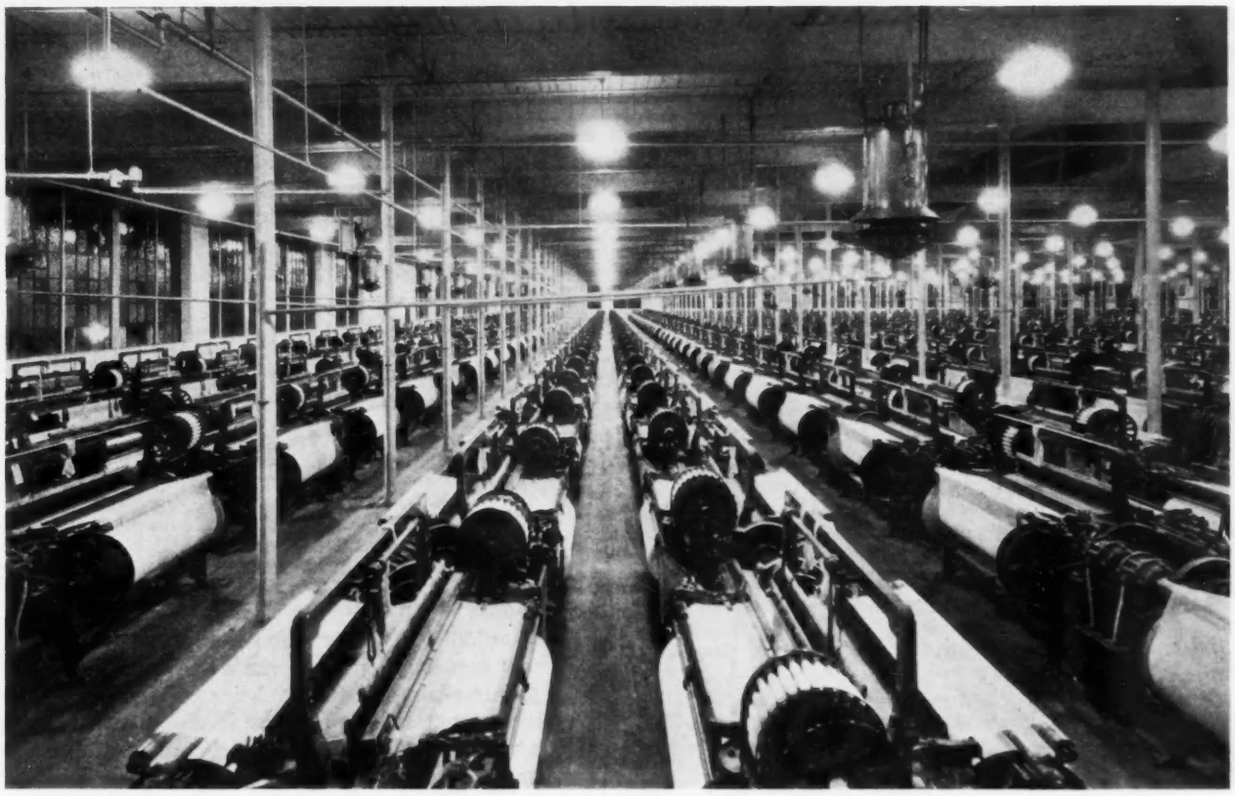
The *contraction of filling* is found as follows: Deduct ends in reed from ends in cloth and divide the result by ends in cloth.

$$56 - 52.03 = 3.97$$
$$3.97 \div 56 = .0709 \text{ contraction; or } 7.09\%$$

The next operation is to deduct the contraction from one.

$$1 - 0.709 = .9291$$

The *width of reed* may be ascertained as follows: If



Modern weaving conditions increase the necessity for rapid and accurate calculations

the number of warp ends in the reed is 52.03 to an inch and the total ends in the warp is 56 × 40, or 2240, we get the following:

2,240 ÷ 52.03 = 43.05 in. width of ends in reed
or .9291 × 43.05 = 40.00 in. width of cloth.

Calculation for the *reed* may be conducted as follows:

.9291 × 56 = 52.03
52.03 ÷ 2 (threads in dent) = 26 reed

The *weight of filling per yard* may be ascertained as follows: Multiply width of cloth by picks per inch and then by one plus filling contraction for a dividend; multiply filling count by 840 for a divisor. Thus:

$$\frac{40 \times 60 \times 1.0709 = 2570.16}{26 \times 840 \text{ hanks} = 21840} = .11857 \text{ lb. weight of filling}$$

Picks per inch may be ascertained as follows: Square the picks per inch and multiply by the yards per pound for a dividend. Add the square of the picks per inch to the yards per pound for a divisor. The square root of the quotient is the picks per inch, minus the warp contraction. Multiply by one plus the warp contraction to obtain the picks per inch in the cloth. Thus:

$$\frac{60 \times 60 \times 19832.4 = 71396640}{60 \times 60 + 19832.4 = 23432.4} = 3046.92$$

$\sqrt{3046.92} = 55.20$ picks per inch, minus contraction

If there were no warp contraction, there would be only 55⅕ picks to the inch.

To obtain the *warp contraction,* proceed as follows: Deduct the picks per inch minus contraction from picks as in the cloth, and divide by the picks as in the cloth. Thus:

60 — 55.20 = 4.80
4.80 ÷ 60 = .08, or 8%

This 8% should be deducted from 1:

1. — .08 = .92
55.2 ÷ 60 = .92

The *weight per yard of warp* may be determined as follows: Multiply the width of cloth by the warp ends per inch, then by one plus contraction for a dividend. Multiply number of warp by yards per hank for a divisor. Thus:

$$\frac{40 \times 56 \times 1.08 = 2419.2}{21.5 \times 840 = 18{,}060} = .13395 \text{ lb. per yard, warp yarn}$$

.11857 lb. of filling per yard
.13395 lb. of warp per yard
.25252 lb. of cloth per yard.
1 ÷ .25252 = 3.96 *yd. of cloth per pound.*

Sizing the warp yarn 5% would affect this result as follows:

$$\frac{40 \times 56 \times 1.08 \times 1.05}{21.5 \times 840} = \frac{2540.16}{18{,}060}$$

= .1406 lb. of warp yarn, sized

.14065 lb. of warp yarn per yard
.11857 lb. of filling yarn per yard
.25922 lb. of cloth per yard
1 ÷ .25922 = 3.86 *yd. per pound, warp sized.*

Proof of Calculations

To prove the calculations, proceed as follows: Multiply the width of the cloth by the yards per pound, by the warp ends per inch, and by one plus the warp contraction. Then multiply the width by the yards per pound, by the picks per inch, and by one plus the filling contraction. Add the results, and the sum will be the yards per pound of number 23.61, or the average number of the yarn. Thus:

40 × 3.96 × 56 = 8870.4 × 1.08 = 9580.032
40 × 3.96 × 60 = 9504. × 1.0709 = 10254.816
18374.4, constant. 19834.848 yd. per pound
19834.848 ÷ 840 = 23.61

The *percentages of warp and filling* may be required and can be obtained by the following rule: Divide the ends in the warp by the number of the warp yarn. Multiply the picks per inch by the width of the cloth and divide by the number of the filling yarn. Divide the first quotient by the sum of the two quotients. The

result will be the percentage of the cloth which is warp. The remainder is filling. Thus:

$56 \times 40 = 2{,}240$
$2{,}240 \div 21.5 = 104.186$, first quotient
$60 \times 40 = 2{,}400$
$2{,}400 \div 26 = 92.31$, second quotient
$104.186 + 92.31 = 196.496$
$104.186 \div 196.496 = .53$, or 53% of warp
$100 - 53 = 47\%$ of filling

Proof of all of the foregoing may be had by using the constant 18374.4, obtained in the previous proving calculation. Thus:

Divide constant by the average yarn number:

$$\frac{18374.4}{23.61} = 778.24 \text{ total contraction}$$

Divide constant by the total warp and filling ends per square inch times the yards per pound:

$$\frac{18374.4}{459.36} = 40 \text{ width of cloth}$$

Divide constant by the width of cloth times the total ends per square inch.

$$\frac{18374.4}{4640} = 3.96 \text{ linear yards per pound}$$

Divide constant by width of cloth times yards per pound:

$$\frac{18374.4}{158.40} = 116 \text{ total ends per square inch}$$

Divide constant by contraction allowance:

$$\frac{18374.4}{778.24} = 23.61 \text{ average number of yarn}$$

Divide width times linear yards by inches per yard:

$$\frac{158.4}{36} = 4.40 \text{ sq.yd.}$$

Divide ounces per pound by yards per pound:

$$\frac{16}{3.96} = 4.04 \text{ oz. per linear yard}$$

Multiply filling contraction by warp ends per inch:

$.0709 \times 56 = 3.97$
$56 - 3.97 = 52.03$ ends in reed per inch

Divide ends per inch in reed by ends in dent:

$$\frac{52.03}{2} = 26 \text{ reed}$$

Divide cloth width by one minus filling contraction:

$$\frac{40}{.9291} = 43.05 \text{ in. width of ends in reed}$$

In this article an attempt has been made to illustrate various systems which, although possibly not new in principle, contain a number of short cuts which have never been described before, so far as the writer is aware. This article has been written in as simple and elementary a manner as is possible in the ability of the author. Most of the rules are for plain goods. Rules for satins or goods of open or figured designs must be treated much differently than in this article.

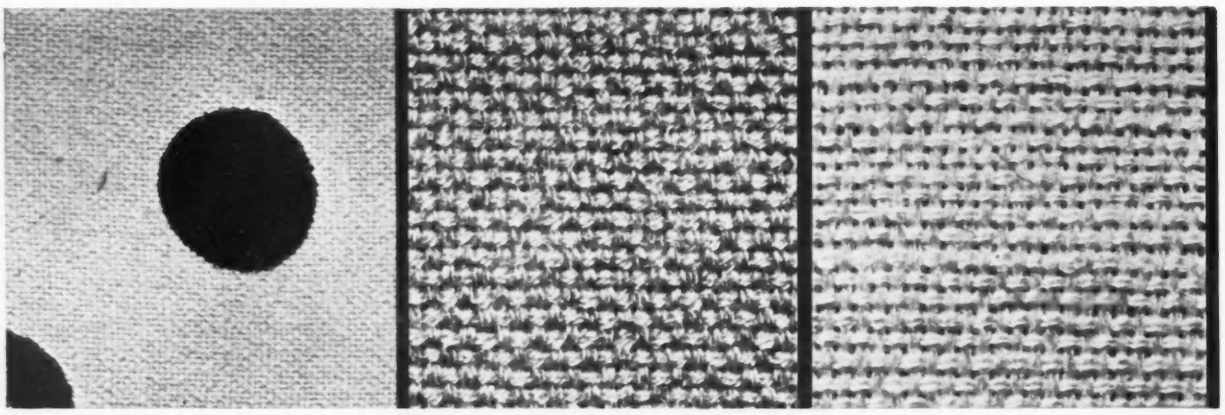
The following is a summary of the information which has been obtained in this article regarding the cloth in question:

23.61	average number of yarn
18932.4	yards to pound of average number of yarn
52.03	warp ends in reed per inch
43.05	width of total warp ends in reed
26	reed
7.09	percentage of filling contraction
.11857	weight of filling yarn per yard
55.2	picks per inch minus 8% contraction, or 4.8 (NOTE: If there were no warp contraction, there would be only 55.2 picks to inch. As there is an 8% contraction, there are 55.2 picks in .92 of an inch, or 60 picks per inch.)
8	percentage of warp contraction.
.13395	weight of warp per yard

The amount of contraction will vary considerably in different constructions. In mills in which the product is confined to plain and twill fabrics of medium counts the problem is not so complex as in mills which manufacture a wider range of goods. If a construction is figured incorrectly or on a faulty basis (as some of them are), the difference between cost and selling price is likely to be on the wrong side of the ledger. Contraction of warp and filling threads varies according to the counts of yarn used and the number of intersections per inch in the fabric—that is, the number of times the warp interweaves or passes over and under the filling threads. Hence the more intersections we have, the greater will be the percentage of contraction.

As an illustration of this, a 60-pick fabric of plain weave will have less warp contraction than one having 96 picks, if the yarns are the same in both cases. On this principle it will be readily understood that twill fabrics will not contract the warp yarn to the same degree as plain cloths. In satin weaves, the intersections being few in number as compared with the plain weaves, the warp threads are not forced out of the straight line to such an extent, and therefore there is less contraction.

These rules can be applied to any fabric made from cotton, silk, rayon, linen, worsted, or mixed materials.



Durene and Spun Rayon Mixtures

Recent Durene and spun rayon mixtures developed by Rossman Bros. & Messner, Inc. In the illustration the weaves, which depend upon their construction for decorative value, are shown (center and right) in enlargement. The dot version (left) is illustrated in actual size.

S. C. Mill Men Ask Legislation *Against Night Employment of Women and Minors*

From TEXTILE WORLD'S *Southern Office*

MILL executives in the South have become more outspoken recently in insisting that legislation against the employment of women and minors at night is not only desirable but absolutely essential if success of the movement sponsored by The Cotton-Textile Institute is to become permanent. Gathered together in Columbia on March 26, cotton manufacturers of South Carolina representing approximately 4,000,000 spindles, or 80% of the total productive equipment in that State, petitioned the legislature to enact laws prohibiting industrial employment at night for women, and minors under 18 years of age.

This action on the part of South Carolina manufacturers represents, in the eyes of many close observers, another and more intensive drive against the practice of working women and minors on night shifts. This custom, it is pointed out, has been abolished by law in practically every industrialized country in the world with the exception of the United States. Now we find groups of manufacturers joining forces with sociologists, clergymen, editors and the working people in appeals for legislation to forever rid the industry of an evil that has in the past been a "sore-spot" in textiles.

T. M. Marchant, president of The Cotton Manufacturers Association of South Carolina, one of the pioneers in the movement, presided at the meeting. There was some opposition but, upon putting the issue to a vote, it developed that 83% of the spindles represented were in favor of legislation to support the voluntary declaration against night employment for women, and minors under 18 years of age, in South Carolina. A committee was appointed to present the matter to the legislature and request for passage of the bill. The committee is composed of the following executives.

R. E. Henry, Dunean Mills, Greenville, S. C.; John A. Law, Chesnee (S. C.) Mills and Saxon Mills, Spartanburg, S. C.; George M. Wright, Republic Cotton Mills, Great Falls, S. C.; W. S. Nicholson, Union-Buffalo Mills Co., Union, S. C.; Zack F. Wright, Newberry (S. C.) Cotton Mills; Ligon, Arcadia Mills, Spartanburg, S. C.; James P. Gossett, W. P. Hamrick, Pacific Mills, Columbia, S. C.; H. Arthur Gossett Mills, Anderson, S. C.; B. E. Geer, Judson Mills, and S. M. Beattie, Piedmont (S. C.) Mfg. Co., both of Greenville, S. C.; John R. Hart, York, S. C.

Nicholson Explains Attitude

Explaining the attitude of those mill executives seeking legislation to prohibit the employment of women and children at night, W. S. Nicholson, president, Union-Buffalo Mills Co., Inc., Union, S. C., operating three plants with combined equipment of 165,000 spindles and 4,500 looms, recently sent out an open letter which was, in part, as follows:

"South Carolina's textile industry is at the cross roads. The employment of women and minors at night during the past ten years has well-nigh bankrupted South Carolina's leading manufacturing industry. The attached chart shows the indexes of investment values of industrial stocks during the period 1923-1930, as reported by Dow, Jones & Co., of New York, and, in contrast, the course of investment values in southern cotton mills as prepared by R. S. Dickson & Co., of Charlotte, N. C.

"A sick industry automatically tries to protect its solvency by reducing every item of expense. Workers suffer by cuts in wages; investors by the loss of their capital; the State by the loss of income taxes. The certainty of property and special taxes comes into question. The disease in this industry has been temporarily arrested by the voluntary action of the companies owning 83% of the cotton spindleage of the United States in banning night employment of women and minors.

"Experience in other industries and other countries has demonstrated that such voluntary reform measures must be crystallized into law to insure permanency. Every important country in the world now prohibits night work by women and minors. The prosperity of the southern States in which this industry is so all-important lies in the hands of the legislature of each State. The mills refusing to follow the large majority in putting an end to this evil are few in number but they are using every influence possible to prevent favorable consideration of such legislation.

"A normal profit in this industry would return hundreds of thousands of dollars in taxes to the State, but this is the less important side of the picture. The overwhelming majority of employers wish to pay fair wages and provide steady, uninterrupted employment. A normally profitable industry enables them to do so. But most important of all—the continuation of the employment of women and minors at night is bound to undermine the health of our citizens. Justified only as a war emergency, it is being continued to give a small minority of the mills a large economical advantage over their competitors in the industry. This abuse is condemned by physicians, sociologists, statesmen, editors, the clergy, the average citizen, and by a great majority of the working people themselves. Singularly, it is defended only by those engaged in it or affected directly or indirectly by it.

"Overproduction is the greatest single evil existing today. Eliminate night work for women and minors and the health and stamina of our citizens will be improved; profits will ensue; fair wages and steady employment will be a natural concomitant; investors will realize a fair return on their capital and the State of South Carolina can expect its income and general property taxes with regularity and certainty."

Should the legislature of South Carolina pass legislation prohibiting the employment of women and minors at night it is expected that, (*Continued on page 74*)

Reducing Steam Pressure

for Heating and Process Work

By Charles L. Hubbard

TEXTILE mills, as a rule, require large quantities of steam for heating and process work. Since this steam must be furnished at different pressures, according to the purposes for which it is to be used, the proper selection of equipment for reducing steam pressure is no small problem.

In the warming of buildings; operation of dryers; and the heating of water for washing, scouring, dyeing, etc., a low pressure of 1 to 5 lb., such as may be obtained from the exhaust of an ordinary non-condensing engine or turbine, will answer the purpose, so far as it goes. However, the quantity of low-pressure steam available from this source may not be sufficient at all times, and also other processes may require steam at varying higher pressures. It becomes necessary, therefore, to provide means for supplying live steam at reduced pressures to meet these demands. Pressure-reducing valves are commonly employed for this purpose, although non-condensing engines and turbines are used to advantage under certain conditions in many of the most modern plants.

There are a number of different types of reducing valves on the market from which selection may be made for a wide variety of operating conditions. They are automatic in action, and practically all make use of the low or reduced pressure for controlling the valve opening, so that just enough steam is passed to maintain the desired pressure under varying demands. The plant engineer should provide himself with sectional drawings or cuts of the various makes and types under his care, in order to make any necessary adjustments and repairs to the best advantage. In general, a valve of simple design is to be preferred, although much depends upon the accuracy of construction. It is usually considered that for small pressure reductions, say from 30 to 50 lb., a single-seated valve will give the best service. For greater reductions the double-seated balanced valve is generally advisable, unless there is some other condition which cannot be met by this type.

Some valves are made to close tightly, while others of equally high grade are not. This feature should be considered when making a selection. In cases where a certain amount of steam is always required, or where the valve is used to supplement an exhaust heating system, a slight leakage past the seat will do no harm. On the other hand, there are places where the consumption of steam is small as in supplying certain equipment for process work, and where the demand may cease entirely at times, thus producing a dead end. Under conditions of this kind a valve which does not close tightly will allow the pressure to build up gradually, and in time become equalized on both sides of the valve. In this case serious damage may be done, both to the equipment and to the goods in process of manufacture. Other things being equal, a single-seated valve is preferable for dead-end service, or where the valve is required to shut off the flow of steam entirely, for the reason that it is easier to keep one seat tight than two when both are attached to the same stem.

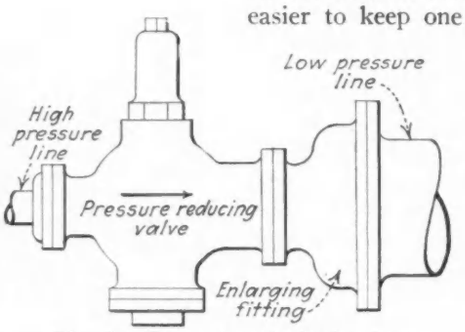


Fig. 1. Correct method of enlarging pipe beyond the reducing valve

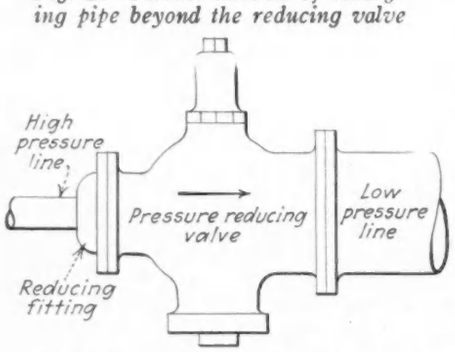


Fig. 2. Incorrect method of using a large valve and bushing down the inlet

When installing a reducing valve, care should be taken to place it so that the steam will pass through in the direction indicated by the arrow or other device cast on the outside of the body. Most valves are designed to be placed in a horizontal pipe, although with certain modifications many of these may be set in a vertical position. Others, owing to their construction, operate equally well in either position. In any case, this is a detail to be considered when selecting a valve for a definite location.

Size of Reducing Valve

The mistake is frequently made of using a valve too large for its work, it being customary in many cases to make it the same size as the low-pressure with which it connects. In other instances a uniform velocity of 6,000 ft. is assumed for all pressure differences. Neither of these assumptions is logical, and both give a larger valve than is necessary. In case of a low-pressure steam line, it is customary to assume a pressure drop of $\frac{1}{4}$ to $\frac{1}{2}$ lb. per 100 ft. of length. This would give only 2 lb. difference between the ends of a 400-ft. main; furthermore, the frictional resistance of the pipe would have an important effect in cutting down the quantity of steam passing through the pipe. In case of the reducing valve we have pressure differences ranging up to 100 lb. or more, and only the resistance of an

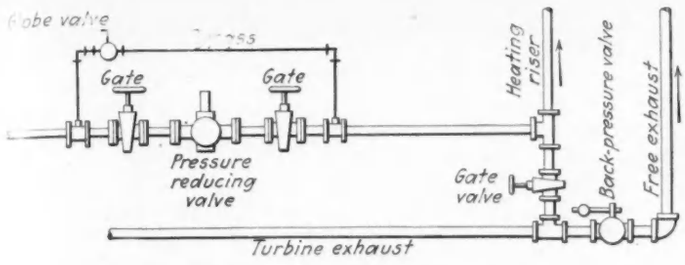


Fig. 3. Piping arrangement for connecting a reducing valve with a combined power and heating plant

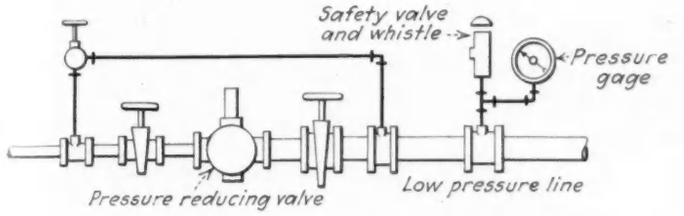


Fig. 4. Safety alarm and pressure gage used with a pressure-reducing valve

orifice or short tube as against a long pipe line. It is evident, therefore, that the valve must operate in a nearly closed position in order to bring the quantity of steam flowing through it down to the capacity of the pipe under practical working conditions.

This condition is undesirable, since it increases wire-drawing and scoring of the valve seat, so that the valve may fail to function properly in a short time: It is evident, furthermore, that the more oversized the valve is, the quicker this action will take place. Low-pressure steam lines supplying heating systems must necessarily be proportioned for maximum conditions. This means that for the greater part of the heating season the load does not exceed one-half their capacity, which makes operating conditions at the valve still worse.

Reducing valves based on a flow of 6,000 ft. per min. will be more nearly in line with the requirements; but even this assumption gives an opening much too large. In cases where the reduction in pressure is more than 40%, which covers most conditions in heating and industrial work, there will be but little variation in velocity of flow through an orifice for varying differences in pressure upon the two sides. For initial pressures exceeding 20 lb. the velocity under the conditions outlined will run from 800 to 900 ft. per second, or around 850 ft. for a nozzle of ideal shape. The port of a reducing valve is not, of course, ideal, but it would seem safe to assume that one-half the above figure, say, 400 ft. per second, would be satisfactory.

On this assumption, we have the following formula for computing the capacity of different port openings: $W = \frac{A \times 24{,}000}{144 \times V}$; in which: W = pounds of steam delivered per minute; A = area of port, in square inches; and V = volume of 1 lb. of steam at initial pressure in cubic feet. Table I gives the area, in square inches (A in formula) for circular openings of different diameters, and Table II the volume of 1 lb. of steam at different pressures (V in formula).

In order to compute the required area of opening to pass a given weight of steam, the original formula may be changed to the following form: $A = \frac{W \times V \times 144}{24{,}000}$

Using this formula to compute the size of the opening needed to pass 65 lb. of steam per min. with an initial pressure of 125 lb. and a reduced pressure anywhere below 75 lb., we find that we need a free opening approximately $1\frac{1}{4}$ in. in diameter. Employing similar formulas to compute the sizes of pipe lines needed to carry the same amount of steam at the initial and reduced pressures, but calling 7,000 and 5,000 ft. per min. the average velocity of high-pressure and low-pressure steam, respectively, we find that a $2\frac{1}{2}$-in. high-pressure main is needed and a 7-in. low-pressure connection.

A stock valve would have considerably less difference between the size of the inlet and outlet connections; the outlet for a $2\frac{1}{2}$-in. inlet would more likely be 5 in.

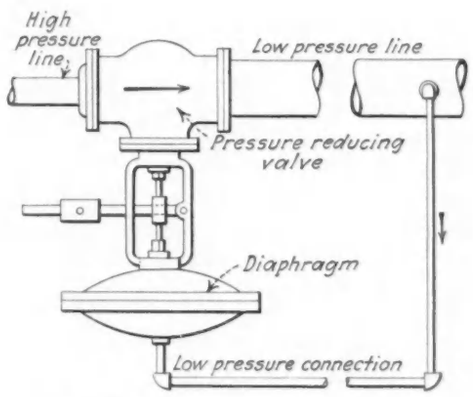


Fig. 5. Method of making an outside low-pressure connection with a reducing valve

instead of 7, as computed by the methods given. In selecting a stock valve for the conditions better results would be obtained by using a $2\frac{1}{2}$x5-in. valve, with the outlet enlarged, as in Fig. 1, than by employing a valve having a 7-in. outlet and bushing down the inlet to $2\frac{1}{2}$ in. as in Fig. 2. In either case, the area of the valve port should be checked to see that it has a free area of at least $\frac{1}{4}$ sq.in. when fully open.

Connections for Reducing Valves

Practically all types of reducing valves should be provided with cut-out valves and by-pass, as shown in Fig. 3, so that they may be easily removed in case of repairs. The cut-out valves on either side of the reduc-

TABLE I. AREA OF CIRCULAR OPENINGS

Diameter of Opening in Inches	Area of Opening in Square Inches	Diameter of Opening in Inches	Area of Opening in Square Inches
$\frac{3}{4}$	0.442	3	7.068
1	0.785	$3\frac{1}{2}$	9.621
$1\frac{1}{4}$	1.227	4	12.566
$1\frac{1}{2}$	1.767	$4\frac{1}{2}$	15.904
2	3.142	5	19.635
$2\frac{1}{2}$	4.909	6	28.274

TABLE II. VOLUME OF STEAM AT VARIOUS PRESSURES

Steam Pressure in Pounds per Sq.In.	Volume of 1 Lb. in Cubic Feet	Steam Pressure in Pounds per Sq.In.	Volume of 1 Lb. in Cubic Feet
25	10.49	175	2.41
50	6.65	200	2.14
75	4.89	225	1.92
100	3.88	250	1.75
125	3.22	275	1.60
150	2.75	300	1.48

ing valve should be of the gate pattern so as to give a free passage-way for the flow of steam and eliminate water pockets.

A globe valve, either of the straightaway or angle type, is best for the bypass, as it may be more closely regulated when used as a substitute for the reducing valve. The bypass should have an area equal to or only slightly larger than the port in the reducing valve, and should not be based on the pipe-line connections with the valve body. There should also be a pressure gage in the low-pressure line near the valve for use when setting or adjusting the latter. It is also well to provide a pop safety valve, with whistle set to blow at 5 to 10 lb. above the normal pressure.

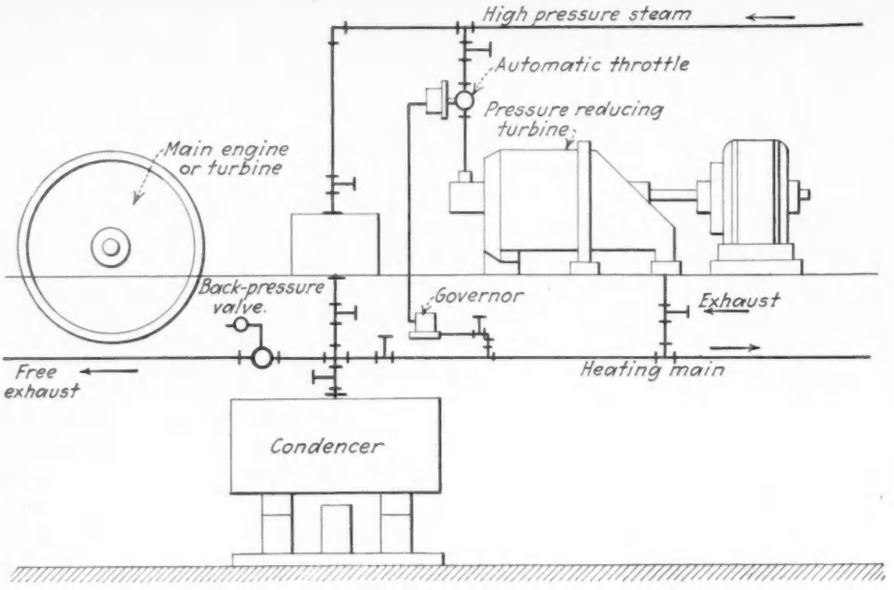


Fig. 7. Method of employing a steam turbine as a reducing valve

Some types of reducing valves are self-contained; that is, the low-pressure steam reaches the piston or diaphragm controlling the action of the valve through interior passages; others require an outside connection with the steam line, as shown in Fig. 5. When this is done, the best results are often obtained by making the small connecting pipe of considerable length, say 6 or 8 ft., as this tends to give a steadier action to the valve, although certain designs do not require this arrangement.

When ordering a reducing valve, the initial and final pressures under which it is to operate should always be given, since the range has an important bearing on the design and proportions. If the total reduction is beyond the range of the particular valve it is desired to use, two units may be employed, and the work divided between them. If this is done, the valves should be placed a considerable distance apart; that is, one near the high-pressure main and the other at the other end of the line close to the point where the low-pressure steam is to be used. It is necessary to have sufficient volume in the space between the valves to prevent pulsation. If this distance necessarily is short, an expansion chamber may be placed between the pressure reducing valves, as shown in Fig. 6.

Turbine as a Reducing Valve

In plants where the exhaust from the main engine or turbine corresponds fairly well with the heating requirements, so that the reduction of live steam for supplementary purposes is not excessive, pressure-reducing valves, of the general type described, give satisfactory results and are widely used.

They do not, however, produce any useful work in transforming the steam from a higher to a lower pressure. However, the heat generated in the process is absorbed by the steam, evaporating any moisture which it may contain and super-heating it to some extent, so it is not lost. It can be shown by a simple mathematical calculation, that the power generated by using a turbine for pressure reduction, is produced at a comparatively low cost. Many textile mills have a good heat balance during the heating season; but must throw away a large amount of exhaust steam during the summer if operated non-condensing. Such plants are usually provided with condensing equipment for use during six months or more of the year. In this way they are able to secure the necessary operating economy, which calls for the pressure reduction of a considerable amount of live steam for process work during the non-heating season.

A good arrangement in this case is shown in Fig. 7. Here, instead of obtaining the low-pressure steam by means of an ordinary reducing valve which does no useful work, a non-condensing turbine is employed, which is arranged to start and stop automatically as the steam in the heating main varies between slightly different limits. The throttle valve of the turbine is controlled by a governor valve in the exhaust pipe, which in turn is actuated by slight changes in pressure in the heating main, depending upon the demand for steam. The power generated by the smaller turbine is transmitted to the switchboard, and relieves the main generator unit of a like amount. With the high pressure now carried in large industrial plants, it is usually possible to secure practically any exhaust pressure from the non-condensing turbine which may be necessary for process work in textile mills. The steam requirements at different pressures will decide the most economical exhaust pressure for this unit.

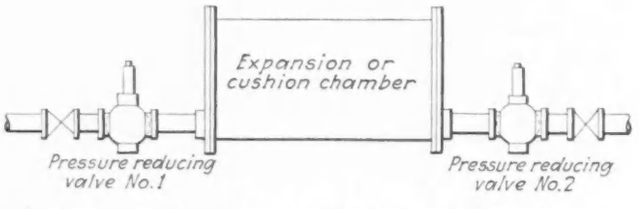


Fig. 6. Expansion chamber used with two reducing valves in series

The Duties of A Fashion Analyst

By Charles S. Fowler
Lorraine Mfg. Co. of New York

AS the name implies, the duties of a fashion analyst are to analyze fashions in the field wherein she is employed. Most fashion analysts at present are women, and there is no valid reason why that sex should not continue to dominate this field of activities.

Even though the fundamentals are identical for all kinds of fashions, we will treat the subject from the viewpoint of a manufacturer of fine cotton and rayon, and all rayon goods for women's wear. The retail price range is from 80c to $2.00. The customers are cutters, large retailers and wholesalers. With the above given data the product would fall into the general class called "moderate priced fabrics." They must be fairly safe and sane, but in fashion, show real value, and have enough individuality to attract attention.

The fashion analyst must, of course, be familiar with the present policies of the firm, and informed at all times of its plans for the future. It is, of course, assumed that she is thoroughly acquainted with the fabrics manufactured by her company during the last four or five years, and their sales reception by the customers. Her knowledge should also include the limits of design and construction or texture, governed by the mill equipment.

She should also have contact with the customers. This is most necessary; and mostly neglected. Never lose sight of the fact that the fashion analyst should analyze such fashions as are salable to her firm's customers. If she is never in touch with them, she will never truly know their criticisms and reactions.

A fashion must first start as a "style," from which it emerges after general acceptance and widespread imitation. The first concern of the analyst is therefore to observe carefully and record by notes and samples new styles. Of course we refer to fabrics only, but they always involve consideration of the silhouette. Any argument as to which comes first is like the old argument of the chicken and the egg.

Treating the silhouette and the fabric as one, the progress of a fashion may be charted as follows:

1—Fabric creations by master weavers such as Rodier, Bianchini, etc.
2—Fabric selection by leading courtouriers.
3—Fabric selection by leading American importers.
4—Presentations of silhouettes by leading courtouriers.
5—Selection of both fabric and silhouette by fashion leaders.
6—Selection of fabric and silhouette by high class buyers, to be copied at moderate prices.
7—Sponsorship of these fashions by leading style publications.

Through the use of properly indexed notes or a suitable chart, the analyst can follow up any type of fabric adaptable to the manufacturing equipment of the mill. When she feels sure that the style will develop into a fashion, sample pieces should be put in work, and soon thereafter offered to the trade. This insures the company being in on the upswing of a fashion trend.

It is quite generally agreed that only a certain portion of the product should be of this type to encounter minimum sales resistance. Advisable proportions are 50-60% staple; 20-30% semi-staple; 10-20% new fashions. The sales should be roughly classified into these three divisions, and every effort made to avoid too much attention to any one class. The fashion analyst is really concerned only with the new styles, as the semi-staples and staples are the result of a natural sifting out process of the once new styles or fashions. A record of the new styles put out and their sales value should be kept.

The fashions in vogue at the present time may be followed through, actual counts and observations made in fashion centers, or lacking time, the fashion analyst may rely on style publications for definite data. The collection of such data, and a careful comparison of previous data is a most important duty, for it shows the trend of fashion. Merchandising against the trend of fashion has always been fatal.

The fashion analyst may be regarded as the balance wheel between sales and production. Members of the sales force are continually wanting something new or different from their competitors, while at the mill they want to run the same old fabric year in and year out. She knows that too many new things will make an experimental laboratory of the mill, and too few will drive the customers to a competitor. She must, therefore, be able to give the management all the facts on the present fashions, future trends and styles that may develop into fashions, in such a clear and concise form that the management may formulate its fashion policies.

To do all of this requires a person of much ability. Briefly, the essential qualifications are: keen student of human nature; good taste, but enough common sense to restrict the application of it to the limits of the taste of the firm's customers; ability to sense essentials; brevity in reporting facts; personal modesty; statistical knowledge; knowledge of styles and fashions of the past; open-mindedness. Such a person is necessary to an organization which would make and sell women's wear fabrics at a profit and she must be allowed to operate unhampered by antiquated management policies.

Temperature-Control Instruments

Stop Guesswork in Processing Textiles

By Francis A. Westbrook
M. E.

IN ALMOST all chemical operations on textiles one of the most important of all conditions is the temperature at which the processes are carried out. The bleacher, dyer, or finisher must, therefore, know his temperatures at all stages of every treatment and he must also be able to control them quickly and accurately. This can only be done by means of the proper measuring and control devices. While in some cases, mill operators still get along with a simple indicating thermometer which is merely stuck into the liquor, in nearly every case more satisfactory results from the standpoint of economy, quality, and uniformity can be obtained by using automatic controllers and recording thermometers.

As a rule, a recording thermometer is decidedly preferable to the dial or glass thermometer because it must be remembered that the latter types simply indicate the temperature, while the chart of the former furnishes a true record of the activity of the controller, shows the active period of operation of the apparatus, and can, therefore, be used to check production of the machine.

In the general operations of scouring, bleaching, souring, washing, dyeing, and drying to which cotton is subjected, temperature is an important factor. In the first of these, scouring, the temperature of the liquor circulated through the pressure kier may be maintained at the necessary uniform level either by an automatic temperature controller with its bulb, as well as that of the recording thermometer, in the circulating pipe leading from the bottom to the top of the kier or in the line leading from the external heater to the kier. In Fig. 1 is shown the arrangement suggested on a pressure kier employed for loose cotton.

When cotton cloth is desized with the aid of diastatic compound the temperature must be maintained within extremely narrow limits, for as is well known, excessive temperature destroys the enzyme and too low a temperature renders the enzyme too sluggish, so that in neither case is desizing satisfactory. In this case the importance of temperature regulation is so great and the allowable variation so small that a special precision controller must be used.

Constant temperature of the wash water is necessary in order to secure uniform results; and where wash water is heated to a constant temperature in a central plant and then distributed to various washing tanks and reduced in temperature by the addition of cold water, dial thermometers at the washers can be used as a check on the temperature. The automatic temperature controller is, in this instance, associated with the central water-heating plant.

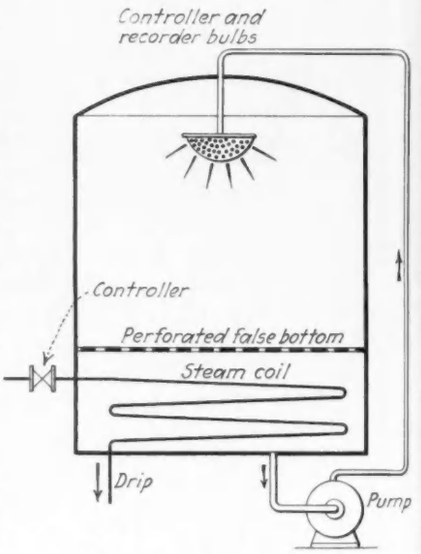


Fig. 1. Pressure kier for loose cotton showing positions of temperature controls

Bleaching

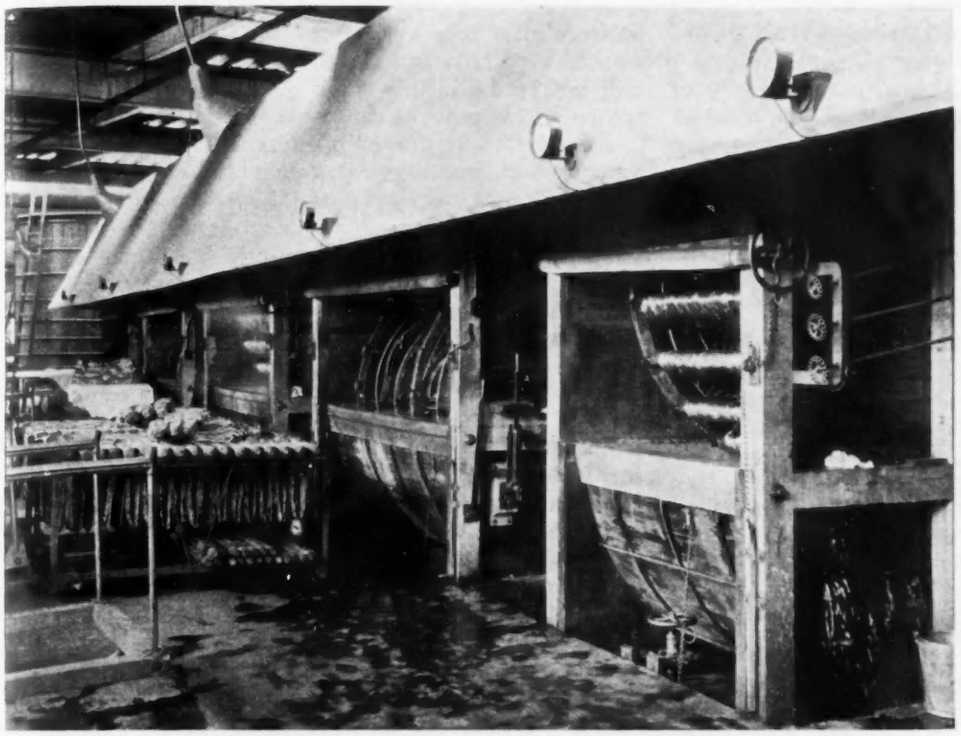
In the chemicking process the temperature may be somewhere between 60 and 100° F.; but to secure uniform results, it must be kept constant. In the case of colored cotton goods, for example, it is not efficient to use cold chemical, because the activity of the liquor is so slow that the bleaching is poor and the colors are liable to bleed on account of the length of the time it is necessary to leave the goods in contact with the liquor; on the other hand, too warm a chemical is also injurious. Therefore a closely controlled temperature range is very necessary.

Close control of the temperature of the acid rinse, when employed, is extremely important because of the increased activity of the acid as the temperature rises, which may easily reach a point where the yarn will be damaged.

Cotton hosiery, other knit goods, and woven fabrics,

◆

More uniform results and reduced steam costs are among the advantages which follow the installation of temperature-control instruments on bleaching, dyeing, and finishing machines. In the accompanying article, Mr. Westbrook discusses the value of various types of thermometers used in processing cotton raw stock, yarn, and fabrics. Practically all of his remarks apply equally well in the case of wool, silk, and rayon.



Dial thermometers permit the temperature in each machine to be seen at a glance

which are bleached with hydrogen peroxide for eight to ten hours, particularly need automatic temperature control during this process, for too low a temperature results in reduced bleaching efficiency and improper penetration of the liquor, while too high a temperature results in decomposition of the bleach liquor with too rapid liberation of oxygen.

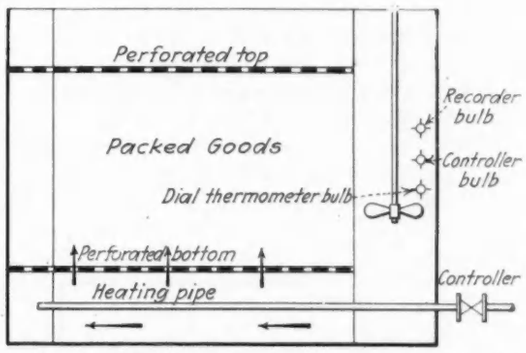


Fig. 2. Position of temperature control and recording instruments in pack system, scouring, bleaching, washing, and dyeing

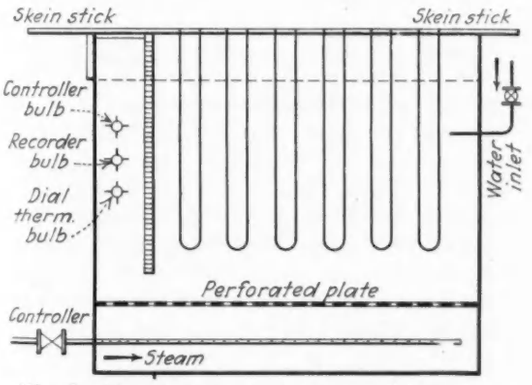


Fig. 3. Temperature controls on tub for scouring, bleaching, and dyeing yarn

Dyeing Cotton

As dyeing is essentially a thermal operation, great care must be taken to provide proper means for the measurement and control of temperatures, for if the proper temperature is not maintained the cotton may be poorly dyed, and the color irregular and not fast. In the first place, the temperature of the wetting-out bath should be checked with a glass thermometer; although if a softener is used, a dial thermometer permanently fixed to the apparatus is preferable. In dyeing loose cotton an automatic temperature controller and recorder should be used. Especially when the dyeing of loose cotton is done in open vats or in the rotary type of dyeing machines is it necessary to prevent tangling of the loose cotton by boiling of the liquid. In this case, the controller must be set so that the temperature of the liquor will not rise above 210° F. If the pack system of dyeing is employed in closed pressure vats or machines of the Hussong type, this danger does not exist; but it is nevertheless necessary to prevent the temperature from rising too high and for this purpose the automatic controller is the most satisfactory. In either case the recorder gives a permanent record of what has taken place. Fig. 2 shows an arrangement which has proved most useful.

Dyeing of yarns with various dyestuffs which call for constant temperatures at different levels depending on the particular colors used, calls for the use of a temperature record and automatic controller. The bulbs of the two instruments are installed at a suitable point in the apparatus and the valve of the controller is installed on the steam line entering the apparatus. It is the only sure way to insure uniform results and shade matching. Arrangement of temperature controls on a skein-dyeing machine is shown in Fig. 3.

If the temperature must be varied at different periods throughout the dyeing process, a time-temperature differential controller is necessary. With this instrument it is possible to start the dyeing process at the proper temperature for a given operation (say, somewhere between 140 and 160° F.), raise it to the boiling point, cool it down again to the properly selected temperature between 140 and 160° F., and maintain it there to the end of the process. This instrument will have the additional advantage of avoiding waste of steam.

Where the cotton warp or fabric is run through a series of tanks containing the wetting agent, mordant, dyestuff, developer, wash liquors, etc., in a continuous operation, it is essential that each solution be at the right temperature as the warp enters and leaves. This can

be realized only by installing automatic temperature controllers on each tank, or a duplex controller for two consecutive tanks. Recording instruments are also extremely desirable here to make a permanent record of the operation of the apparatus. Duplex recorders may be used to advantage.

If the material is to be mordanted before dyeing, it is essential that the tannin bath, or its equivalent, be constantly maintained at its proper temperature, for the amount of mordant absorbed and the depth of shade obtained depend mainly on the temperature. For example, if basic dyestuffs are used on tannin-mordanted

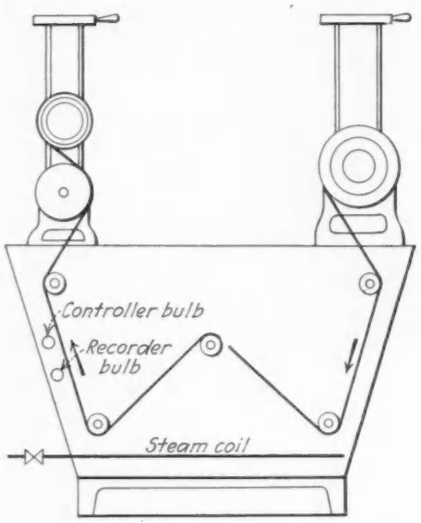


Fig. 4. Position of controller and recorder bulbs in jig for dyeing and washing piece goods

cotton, and the temperature is too high, absorption of the color is too rapid and likely to be uneven; and if too low, the color does not penetrate properly, especially with the heavier cottons. The positions of controller and recorder bulbs in a jig for dyeing piece goods are indicated in Fig. 4.

In fixing substantive or sulfur colors with mineral salt solutions, automatic temperature control is good insurance against temperatures which are so high as to strip a part of the color off the yarn. Again, when developing shades by means of a soap bath, a dial thermometer or control instrument should be used to make sure that the temperature of the bath is within the required range.

Before leaving the question of the dyeing, it should be repeated that the use of a temperature recorder is advantageous. It will give the dyer a complete record of the operation of the machine and will show how much time was spent in unproductive work. This is not only important from the standpoint of quality of product, but also from that of economy of operating.

The mercerizing process, being endothermic, calls for particularly accurate temperature control associated with the cooling arrangement. Fluctuation in temperature causes spotty and uneven results, and too high a temperature lessens the mercerizing effect. An automatic controller of the reverse-acting type is recommended.

Sizing and Finishing

In softening the bleached cotton yarn or fabrics with soluble oils, soap, or other softeners, the proper temperature must be kept uniform, for if too high, absorption is impaired; and if too low, the fatty substances will not be sufficiently fluid. A controller is the best means to this end.

In order to secure uniform results in sizing cotton yarn or cloth, and to avoid streaky and defective goods, the sizing preparations must always be of the same viscosity, which means that it must be kept at the same temperature. Whatever temperature is selected as best for the sizing composition in question, this temperature must be kept constant when it is prepared for a batch and from batch to batch. The surest and most economical way of attaining this condition is to use an automatic temperature controller. This instrument will control the flow of steam into the heating coils according to the temperature of the mass as it actuates the bulb inserted in its midst.

When the dyestuffs and the size are dissolved together and applied in the padder for the treatment of heavily sized colored cotton cloths, such as bookbinders' cloth, awning materials, and the like, the temperature is of particular importance because two processes take place. While too high a temperature may result in the absorption of too much size, too low a temperature has, of course, the opposite effect as far as sizing is concerned, and produces bad penetration as far as the dyestuff is concerned, with the result that the color is held merely on the outer layers of the cloth and can be easily rubbed off. With such conditions as these to cope with, automatic temperature is the reasonable method of meeting the situation. The instrument bulb can be inserted at a proper point in the padder where it will not be damaged and at the same time be actuated by the average temperature of the mass.

Drying Equipment

Whatever apparatus is used and whatever temperature is employed for drying cotton in apron dryers, can dryers, tenter dryers, or loop dryers, the most important consideration is the maintenance of the proper temperature throughout the apparatus or in particular parts of it. When just one temperature is being controlled, the single-system temperature controller is used; and when two temperatures are being controlled—as for example,

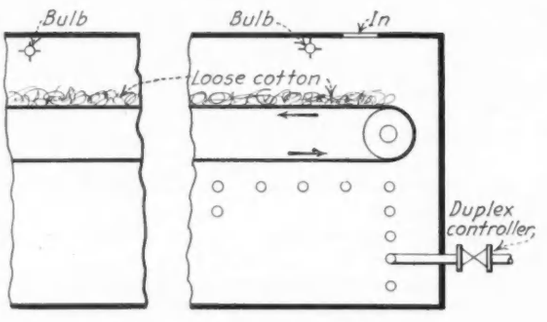


Fig. 5. Duplex Controller on stock dryer

one at the front end of the dryer and another at the rear end—the duplex type (Fig. 5) is used, one connection being made at the front end of the dryer and another at the rear end. It should be remembered, however, that the temperature depends, among other things, on the speed at which the goods are run through the machine, and that the setting of the automatic controller must therefore be changed if the speed is changed.

Blind Competition and Overproduction Are Chief Rayon Problems in Europe

By J. Guthrie Oliver

LAST year was a difficult year for the European rayon industry both in Great Britain and on the Continent but, though consumption was probably smaller than in 1929, there is no indication of any genuine falling off in demand. The chief problem was that of over-production brought about by a decline in demand, mainly due to the world depression and fall in commodity prices. It has been largely over-production, i.e., inadequate demand, that has led to the steady reduction in yarn prices abroad. The biggest price reductions have been in the finer filament yarns; the general standard of yarns used in Britain and Europe has shown a steady improvement, which brought a better call for finer filaments, and that in turn stimulated greater output. So far as trading up is concerned, the year 1930 has certainly seen rayon's position improved in Europe.

Great Britain has been less affected by the overproduction slump in Europe than has any other country. This is because with rayon prices at their very low level, the 1 sh. preference over the foreigner which is enjoyed by the British rayon producer is a sufficient barrier to exclude practically everything but special quality yarns.

Italy Sells to Europe

Details as to the Italian situation give us the best indication as to the European position as a whole. Italy has largely built up her industry as an exporter of yarns, and the world slump in trade has seriously affected her markets. An overstocked market and generally poor trading conditions greatly diminished the Chinese outlet for Italian yarns, which had proved the largest market in the previous year. The other eastern markets also took much smaller quantities than usual.

However, low cost of production and the large scale output in Italy proved an advantage to her producers, who, unable to sell their yarns in Asia, concentrated on Europe with particular attention to Germany. Up to July the Italians were so successful with this policy that exports were larger than in the previous year. Production since has been slowed down to some extent, but the stock position is certainly a problem.

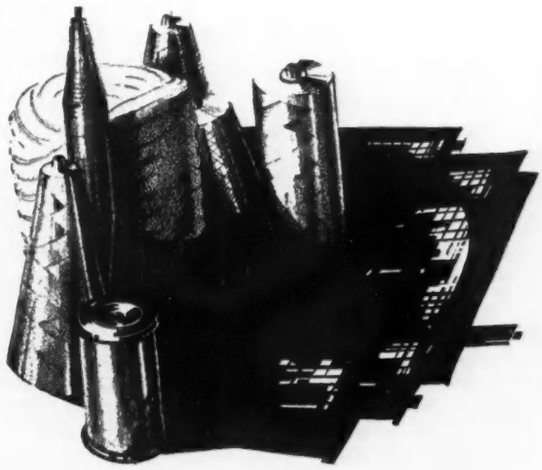
The smaller European countries such as Austria, Spain and Czechoslovakia have had to limit their output because they were unable to compete in their home markets with such countries as Italy. Holland, the second largest exporting country, has been even more successful in clearing stocks in the European market, and Germany has been the main outlet for Dutch yarns despite the financial connections between companies in the two countries. France, and to a smaller degree Belgium, also have dumped yarns in Germany.

Expansion in Germany

One effect of all this competition on the German market has been that yarns have been obtainable in good quality at exceedingly low prices, and German consumption has consequently expanded to a large extent. Efforts to fix up agreements with the importing companies have proved of no avail, and on the whole there has been very little agreement between the two big groups, Glanzstoff and the I. G. Farbenindustrie. The probability is that Germany will increase her tariff on rayon yarns in the near future, which will further add to the difficulties of the European situation.

France, with a large protected home market and an industry divided into a number of important cartels, has had a moderately good year so far as sales are concerned, but there is no doubt that price cutting has been exceedingly severe. The position of acetate yarns in Europe has been difficult on account of the low prices of viscose, though business in this type of rayon in Germany has shown a considerable expansion.

In conclusion we can only express the opinion that the European rayon companies are still only playing with the real issues. This blind competition policy cannot be carried out continuously because it is uneconomic. The fact is that production in Europe greatly outstrips demand and it will have to be substantially limited. Prices in Europe for the most part make it impossible for the manufacturer to buy forward with any confidence. Efforts have been made toward the establishment of a rayon futures market in Berlin to counteract this difficulty, but so far there has been no material result. There has been much talk of price and output restriction conferences, but what few of these have been held cannot show any concrete results. However, good progress is being made with the difficult process of standardization of statistics and of yarn classification, both of which should be of inestimable value in drawing up price and output agreements.



Overseers' Round-Table

THIS department offers a new subject for discussion each week and gives readers' comments on problems introduced during previous weeks. The subject which was opened four weeks ago is closed this week and a summary of contributed ideas is given on opposite page

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Routing Materials

Editor, Overseers' Round-Table:

THE QUESTION of the best method of handling the routing of materials is a very important one. Unless they are careful, overseers get to the point where they let Jones carry the freight, so to speak.

Unless a mill has a central agency for routing and gives orders to each department head telling what materials to start processing you cannot hold any particular department responsible for delays. Whereas, if you have some one who is familiar with all contracts and delivery dates, and who gives each department orders to start processing at a certain date, each overseer can check up if there is any delay in material reaching his department and the matter can be remedied. If the overseer has no orders he will not be able to tell whether the lot is behind time or when to start in process.

In most textile mills the order is booked before manufacturing starts and most orders specify delivery dates. Where a mill sells a dozen or more customers it is very easy to let one or two orders get behind and it is more important than ever to have a central agency control the routing of materials through the plant.

B. T. GLADDEN,
Overseer Preparation.

Intoxicated Workers

Editor, Overseers' Round-Table:

THE CRY of modern business is speed and no man who stupefies his intellect with intoxicating drink is capable, or fit, to operate machinery at top speed.

I am inclined to agree with Pete that there should be a uniform rule for all, and it should be strictly enforced whether it is a new or an old worker. If some of the old fellows must celebrate, let it be on the outside where it will not set a precedent for the younger fellows.

WILBUR SMITH.

Editor, Overseers' Round-Table:

EVERY progressive industrial plant goes to considerable expense to impress on its employees the fact that there is no substitute for safety, and it is most assuredly not safe for a man whose sensibilities are dulled with intoxicating drink to operate machinery of any kind.

This sets a bad example for other employees and may lead to complications. The employee may be seriously injured through his own negligence and then the company will have a law suit to fight.

G. C. LUCAS.

Editor, Overseers' Round-Table:

HANDLING intoxication in the mill is a hard problem. There can be no set rules as there are many different things in every case which must be considered.

No company should permit intoxication in any degree during working hours. Overseers and section men should be expected to set an example in this respect.

Outside of working hours I don't consider that the company should dictate what a man does, but I do feel that the man who drinks when not on duty is not as efficient as the teetotaler.

S. R.

Telling the Worker

"MR. CHASE," Hank took the floor as the overseers gathered for their meeting, "I'd like to bring up a subject for discussion today. I don't think that mill managements have given sufficient thought to the problem and I think that the idea is worth something. What does everyone think about a policy of telling the overseers and workers more about the company and how it is getting along? What I have in mind is telling them about orders and things and even something about financial progress."

"I think," Pete responded, "that Hank has brought up an interesting subject. I can readily see that you would have to use judgment in telling the overseers and workers about the company, but I do think that it would be good policy to let them in on something of what goes on. For example, if an order comes in that is particularly interesting I think that a notice should be put on the bulletin board telling about it. Suppose that some of the product of the mill was to be used in some famous exploration, or that the order was going to South America. Lots of orders have an interesting history and I think that you would find that the help would get a big kick out of knowing some of the details. Of course, lots of mills don't know where their product is going to be used, but, even so, I think that something would turn up every so often which the workers would like to know about."

"Now that I've started thinking about it," Pete went on, "I believe that it would be good to tell the help something about the company's finances. You could put up a notice once in a while telling that the company was, or was not, making good progress and explaining the general situation. Such information always gets out and there are always lots of rumors, most of which are wrong. I think it would be better for the company to tell a little story of what was going on. As I see it, the advantages which would be gained be telling the overseers and help about such things would be that you

What Is Going On

would make the worker realize that he wasn't just part of the machine and that he would have the feeling of being part of the company. When you treat the workers as though you realized that they were interested I think you will find that they *are* interested and you'll have gone a long ways towards getting cooperation and eliminating misunderstandings."

"Pete has favored us with a long speech," Bill came back, "but I don't think he has said much. Suppose that you put a notice on the bulletin board that the company had just received the largest order in its history or that the last year had been very profitable? The first thing you know the help would be putting their heads together and asking for a raise. It's all very nice to talk of everyone connected with a mill, from top to bottom, being all one family, but you know it doesn't work out that way. I hink you would only get yourself in a lot of trouble by telling the help what went on."

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Do *you* think that it is good policy to tell the overseers and workers about how the company is getting along?

Overseers and others are invited to discuss this and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

Editor, Overseers' Round-Table:

How DO you think that intoxication should be handled in the mill? Just like you would handle any other condition that may come up from time to time. No one will claim that our female help is 100% perfect in morals, yet no one would think of watching every one for something indecent. But when a man has a smell on him he is picked out at once as something evil. Why? Because a mountain is sometimes made from a molehill.

If a man is able to do his work, let him do it. If not, send him home and if he does not learn his lesson discharge him, for a man who will not, or cannot, do his work is a loss to the mill. A trained man is better than an untrained man, so let us try to keep a hand if possible.

ELWOOD WARD.

Editor, Overseers' Round-Table:

IN MY opinion it is impossible to lay down any absolute rule regarding intoxicated workers, as there are very few workers who can be handled alike with justice to all.

The punishment, in all cases, should be severe enough to make the worker consider the matter carefully before repeating the offense. Some workers should be discharged, some given an enforced rest of several weeks, while others draw a stiff reprimand. SOUTHERNER.

Editor, Overseers' Round-Table:

THE PRACTICE of drinking is detrimental as it stultifies the thinking powers and deteriorates the physical constitution of those who participate, thus decreasing their executive potentialities.

Those who are habituated to intoxication will usually "pitch" a drunk on the week-end and what do we find on Monday morning? He isn't able to be at his post; he isn't feeling well. He is self-imposing an injury to his own health and something essential may be lacking at his home due to this habit.

Some may think that I am a prohibitionist, or a fanatic, and too exacting, but it is the duty of every loyal American to be subject to our Constitution and to be an habitual drinker shows disloyalty to the nation, as well as to society. F. L. B.

Editor, Overseers' Round-Table:

A COMPANY sure should have a rule for dealing with intoxicated workers, and a very rigid rule at that. This should apply not only to cotton mills but to all industry.

Any employee who doesn't think any more of his job than to go to it in an intoxicated condition should not have a job—and wouldn't have if he happened to be working for me. It is bad enough when you have to let them off on Mondays to get over a drunk, without having to put up with them coming on the job intoxicated. T. A. S.

Editor, Overseers' Round-Table:

THERE ARE many ways to look at this problem of intoxication. I have never yet discharged a worker for coming to work intoxicated, for if we were to fire operatives for every little cause we would soon not have any left.

The overseer should use his own judgment and many times it would be better if he looked in another direction.

I had a fixer working for me who was constantly coming to work intoxicated. To send that man home would have been a crime as he was a better fixer by 100% when in this condition. He worked for me for years and today he has risen from the ranks to a responsible position.

If you are in a district where there is quite a lot of foreign help you will have this problem more or less. Give them a break; it is their money and their lives. JOHN.

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Summary of Discussion on Dealing with Intoxicated Workers

Opinion was about evenly divided on the question of dealing with intoxicated workers; 56% of the contributions stated that there should be no set rule, but that each case should be considered separately. A number of this group believed that the final test was a man's ability to work properly and that punishment should not be too severe. The remaining 44% came out for a definite rule dealing with any worker coming into the plant intoxicated. About half of this group favored immediate discharge while the others favored a lay-off of from one to two weeks for first offenders and discharge for second offenders.

Questions and Answers

We undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to TEXTILE WORLD. We do not undertake, however, routine analysis of yarn or fabric, or investigation involving unusual expense.

Inquiries should give the fullest information and data possible. In the case of damage to material, a sample should be sent. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as evidence of good faith.

Letters expressing opinions or voicing criticism are cordially invited. These will be signed by the correspondent's name unless the letter itself contains a request that the name be withheld.

—EDITOR.

Clothing Cards

Technical Editor:

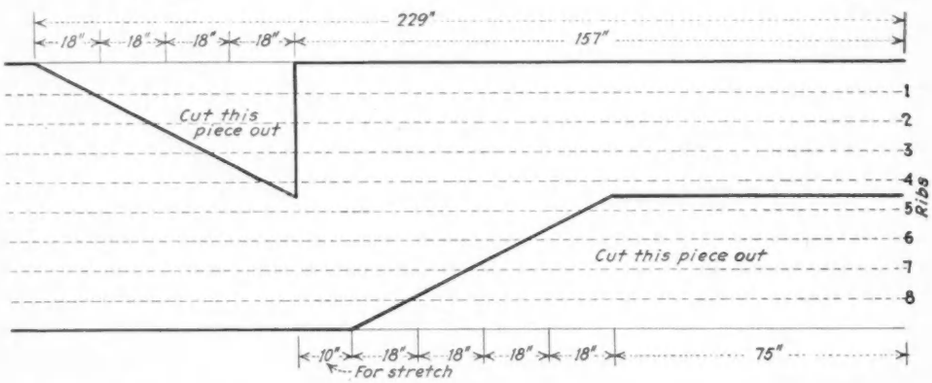
I am interested in the clothing of cards and am writing you for some information on the subject. The thing I should like to know about most is how to measure and cut the tapers. We have Whitin cards at our mill and I should like very much to be able to do my own card clothing, as it would be quite a saving to the company I work for. If you can give me any information, it will be gratefully appreciated. (7493)

There are several methods for cutting tapers, but many prefer the inside taper as they find it stronger and neater. For cutting the fillet for the inside tapers of 50-in. cylinders, for example, it is first necessary to find the length for one lap. This is done by tacking the end of the fillet to a plug and passing it around the cylinder, drawn tight, until the starting point is reached. At the point of contact, the fillet should be marked with chalk and detached.

The lap is divided in its length into varying sections, commencing at the chalk mark and working backwards. The first full width of eight ribs is left for a space of 10 in. At this point the rows of teeth should be pulled from the eighth rib for a distance of 18 in. Commence with the last row and run 6 in.; then run the second row 6 in.; then the third row 6 in.—thus gradually reducing the width of fillet from eight to seven ribs. Repeat the extracting three times in exactly the same way for 18 in. each. Then split through the center for 74 in. Find a suitable plug near the cylinder edge and fasten the narrow four-ribbed tail piece with three tacks. Wrap around the cylinder until five ribs are reached on the cylinder surface. Put tension on the cylinder up to about 300 lb. Gradually tack in several places and continue wrapping until the starting point is nearly reached; then double tack crosswise. Gradually release the tension to some fastenings.

Now fix the fillet to form the second lap. Cut four ribs in for a joint, measure 18 in. and extract from the fourth rib of this portion, gradually tapering 6 in. on the first row of teeth, 6 in. on the second, and 6 in. on the third—just the same as cutting tail and tapering at the end into the third rib. Then measure another 18 in., extract the teeth from the first row of the third rib 6 in., from the second row of the third rib 6 in., and from the third row of third rib 6 in. From another 18 in. extract teeth from the first row of the first rib 6 in., and so on. You then have the full width of eight ribs. Now put tension on about 300 lb. and make a joint. Cut off the triangular piece to where the fillet attains its full width. Wind across the cylinder with 375 lb. tension or about 45 lb. to the rib. Run until the right-hand edge is nearly reached. Then tack securely in several places. Next run on until the fillet is within one-half its width of the cylinder edge. Mark the fillet at this point and take off the tension. Measure 18 in. from this point and extract the first row of teeth; then another 18 in.—and so on until the fourth row of teeth has been extracted. Cut the piece off and measure 10 in. for stretch. Begin cutting tail end measure off 18 in. four times, just the same at the beginning end, and extract four ribs, leaving four ribs for 75 in. and enough to go through the clothing machine.

Rule: Divide the circumference of the cylinder into three parts, 75 in. through center of fillet 18 in. four times from fourth to full width. Make joint. Taper 18 in. four times from middle to full width of fillet. The same directions apply at the other end.



Card-fillet taper for 40 x 50-in. cylinder. A diagram for a 27-in. doffer would be the same with the exception that 39 in. would be cut through the center, and then 12⅝ in. three times. For stretch on the doffer 8 in. would be allowed, and again three times 12⅝ in. to full width of clothing, using six ribs instead of eight.

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Bleaching Chlorinated Wool

Technical Editor:

Enclosed you will find two pure wool stockings. Sample 1 has been given a chlorine process to retard shrinkage; Sample 2 has been given a peroxide bleach. The problem we are trying to solve is to have Sample 1 the same in appearance as Sample 2 and still remain non-shrinkable.

The process we are now using is to give our wool a light peroxide bleach, treat with 3% chlorine, run cold

for 10 min., neutralize with sodium bisulfite, and run through a sulfuric acid bath. Another problem with this same stocking is in dyeing. After it has been chlorinated it is impossible to dye it evenly. Any information you can give us in regard to this will help us a great deal. *(7476)*

The chlorinating of wool imparts to it a yellowish coloration which is almost impossible to remove. The sample submitted was given a mild peroxide bleach to which was added 2% of a protective colloid, which helps to preserve the strength of the wool fiber. Since the stocking marked Sample 1 had already been peroxide bleached and chlorinated, if it were peroxide bleached again without a protective agent, there is little doubt that the fiber would be tendered. Sample 1 came out with a very good color after our treatment, although it was slightly more creamy than Sample 2. Chlorinating wool also imparts to it a much stronger affinity for dyestuffs, so that care must be exercised to retard the dyeing. The addition of a protective colloid will also promote level dyeing. In processing this type of material we suggest a good scouring, chlorination, and finally a peroxide bleach. We believe that the treatment suggested will aid in eliminating the difficulty you are experiencing in obtaining level dyeings.

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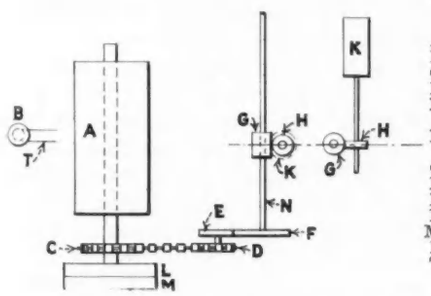
Finding Required Twist Gear of Dolly Roll-Trap Twister

Technical Editor:

Will you please give me an example of how to find the twist gear of two-ply dolly cap twisters? *(7463)*



Gearing diagram of dolly roll trap twister

The following are the formulas for twist constant and twist gear:

$$\frac{\text{Cylinder diam.} \times \text{Twist sprocket} \times \text{Worm-shaft gear} \times \text{Cot-roll gear}}{\text{Whorl diam.} \times \text{Twine sprocket} \times \text{Double worm} \times \text{Cot-roll cir.}} = \text{Twist constant}$$

$$\frac{\text{Twist constant}}{\text{Turns}} = \text{Twist gear}$$

NOTE: Thickness of the tape must be added to the diameter of both the cylinder and the whorl.

Calculation of the twist constant:

Cylinder diameter,	$A = 10$ in.
Whorl diameter,	$B = .75$, 1, or 1.25 in.
Twine sprocket,	$C = 27$
Twist sprocket,	$D = 18$
Twist change gear,	$E =$ to be found
Worm-shaft gear,	$F = 84$ or 130
Double worm,	$G = 2$
Cot-roll gear,	$H = 12$
Cot-roll circumference,	$K = 6.875$ in. (actual measurement)
Thickness of tape,	$T = 0.0625$ in.

THOUSANDS of inquiries are handled annually by the Technical Editors. In order that as many readers as possible may benefit from this service, we select problems of general interest for publication each week.

$$\frac{(A \text{ plus } T) \times D \times F \times H}{(B \text{ plus } T) \times C \times G \times K} = \text{Twist constant}$$

$$\frac{10\frac{1}{16} \times 18 \times 84 \times 12}{1\frac{1}{16} \times 27 \times 2 \times 6\frac{7}{8}} = \text{Twist constant}$$

$$\frac{161 \times 18 \times 84 \times 12 \times 8}{17 \times 27 \times 2 \times 55} = 463$$

Whorl	F	Twist Constant	For Trial Gear Only
0.75 in.	84	605	$\frac{\text{Twist constant}}{\text{Turns}} = \text{Twist gear } (E)$
1.00 in.	84	463	
1.25 in.	84	375	
0.75 in.	130	935	$\frac{\text{Twist constant}}{\text{Twist gear } E} = \text{Turns per inch}$
1.00 in.	130	715	
1.25 in.	130	580	

No allowance has been made for slippage of the tape or for contraction.

Twisted yarns must be tested for twist. Usually ten 10-in. tests are made. The twist gear used must give the turns per inch required. The average of the ten tests is taken as the actual twist in the yarn.

Suppose ten turns per inch are required and the twist constant is 580.

$$\frac{580}{10} = 58, \text{ trial twist gear.}$$

Result of test for actual turns:

1 = 9.8	6 = 9.9
2 = 9.9	7 = 9.6
3 = 9.7	8 = 9.8
4 = 9.5	9 = 9.8
5 = 9.7	10 = 9.8

Average—9.75

Correction of twist gear to give ten turns:

$$\frac{9.75 \times 58}{10} = 56.5$$

Use a 56 or 57 gear.

◆

Corrosion of Fire Extinguishers

Technical Editor:

We noted in your issue for Jan. 10 an article entitled "Carbon Tetrachloride in Removing Stains," in which reference is made to Serial No. 2499, "Carbon Tetrachloride Extinguisher on Electric Fires." Is this a government publication? Where can a copy be obtained?

We understand that if ordinary carbon tetrachloride is used in a metal fire extinguisher, it soon corrodes the container, and to prevent such corrosion, a small percentage of some chemical is added. Can you furnish any information as to what chemical is added, and the amount used? *(7481)*

The article referred to containing reference to Serial No. 2499, "Carbon Tetrachloride Extinguisher on Electric Fires," was taken from a bulletin issued by the

National Fire Underwriters. A copy no doubt, may be had by addressing this organization at its headquarters.

The reason that carbon tetrachloride corrodes containers is because of its contained moisture. The carbon tetrachloride hydrolyzes and forms hydrochloric acid, which is the cause of destruction. While it has been stated that substances have been added to offset this difficulty, there appears to be some doubt whether corrosion is entirely eliminated. This is especially true if the extinguisher has been used and replaced without refilling.

If carbon tetrachloride is shaken with anhydrous sodium sulfate, all traces of acid and moisture are removed. This dehydrated product, if added to the extinguisher, will remain comparatively free from corrosion products.

If, however, the extinguisher filled with anhydrous tetrachloride were used for a small fire, the air drawn into it would be liable to contain sufficient moisture to start corrosion. This fact indicates the importance of refilling extinguishers immediately after use.

◆

Rayon Anklet Uneven in Shade

Technical Editor:

We are sending you under separate cover two cones of 150-denier rayon, one of which is a light blue and the other a light green. We should appreciate it if you would test these cones of rayon for oil content and levelness of dyeing.

We are also sending under separate cover a swatch of fabric made from each of these cones and also an anklet made from each of these cones. Our customer states that he is having trouble with the colored rayon. So far as he is able to determine, the rayon contains too much oil; and in the boarding process, the cast is thrown over the goods which makes them altogether different from what was originally intended.

This customer states frankly that he may be wrong in his diagnosis, but he does not know where else to place the blame. We have been unable, at this plant, to determine just what the trouble could be. Our analysis indicates that the rayon contains 2.6% oil, and we should appreciate your comments on this situation. Both our customer and we are open minded on the matter and have decided it would be a good idea to write to you, asking for your opinion in the matter. (7482)

We have examined the rayon and the knit swatch, as well as the anklet, and can find no indication that the rayon is dyed unevenly. We have examined these by white artificial light, colored light, and daylight. In cones, such as these, any unevenness would show as a band on the top and bottom of the cone.

While our examination did not indicate quite as much oil as you reported, this discrepancy might be due to different analytical methods or to variations in the rayon. In the case of the blue sample, an ether extraction of the oil showed 0.7% of insoluble oil, and an alcohol extraction showed 1.03% soluble oil or soap. These combined give 1.73%. There was noted only a faint odor of castor oil in the cone. This amount of oil should not produce a stain when the hose is boarded.

We took a small skein from the cone and gave it a hot pressing on white paper, but failed to produce an oil stain or any change in the shade. We conducted the same tests on the green sample, and found that the ether extraction gave us 0.92% oil, and the alcohol extraction 0.90% soluble oil or soap. Hot pressing of this skein failed to change the color or to produce an oil stain.

We are of the opinion that the mottled appearance in the anklet is due to the fact that the cotton does not match the rayon and that the plaiting is not satisfactory. In places, the goods have a slight yellow cast, which we feel is due to a dirty board or too hot a board, or to acid perspiration which is affecting the goods where the operator's fingers come in contact with the hose.

The needle oil may be old and dark in color. An uneven application of such an oil would change the shade. In most cases, however, where the needle oil is at fault, there is a distinct band about the goods. We fail to find this indication but it is well worth looking into.

We believe that if you will secure cotton and rayon that match in shade and then correct the plaiting, most of the trouble will disappear.

◆

Finishing Narrow Elastic Fabrics

Technical Editor:

Will you kindly let me know where I can get some information pertaining to finishing narrow elastic webs? That is, the formula that is used for the dip process, as well as for back-sizing. The webs are composed of a mixture of all-cotton, all-rayon, or a combination of rayon and cotton. (7483)

In treating narrow elastic fabric of this type, the goods are generally run into boxes, cans, or baskets from which they are drawn over a series of lease rods to straighten out the material, through a guide, and thence to the size box and squeeze rolls of the finishing machine. At one time the opinion seemed to prevail that the amount of success attained in finishing elastic goods was in direct proportion to the complication of the mixture. These mixtures sometimes constituted more than a dozen different ingredients. But today, the most successful manufacturers are using but two, or, at the most, three ingredients, and obtaining results at least equal to the old methods.

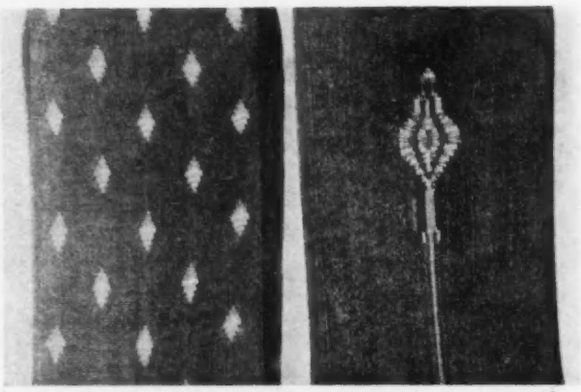
We recommend the following formula for finishing all types of materials where a soft, lustrous finish is desired: Dissolve 1 lb. gum arabic in 1 gal. water. Next dissolve separately ¼ lb. gum tragacanth in 1 gal. water. Use one part of each solution to 4 or 5 parts water. The bath should be lukewarm, not hot.

A more economical mixture, but one in which the softness is lacking, is prepared as follows: Mix 2½ lb. soluble potato starch and 5 lb. glucose in 5 gal. water. The starch and glucose are entered into the water and the whole brought to a boil. Before using, the mixture should be allowed to cool to a temperature of about 180° F. This is suitable for most materials excepting those in which rayon is employed.

A still cheaper mixture may be made by omitting the glucose, and using only soluble potato starch or ordinary potato starch and water. The amount of starch used may vary from ½ to 5 lb. to 5 gal. of water, depending upon the firmness desired. Greater penetrating qualities will result from the addition of about ¼ to ½ the quantity of cornstarch or corn dextrin. Another mixture that is sometimes used for goods other than rayon is composed of 1 to 3 lb. of white finishing gum to 5 gal. of water.

Any of the foregoing mixtures may be used in either the dip process or in back-sizing.

New Machinery & Processes



Pattern made on 25-step-spiral model-B machine equipped with three-color attachment

Pattern made by means of three-color attachment on 25-step-spiral model-H H Machine

Three-Color Attachment for Spiral Hosiery Machines

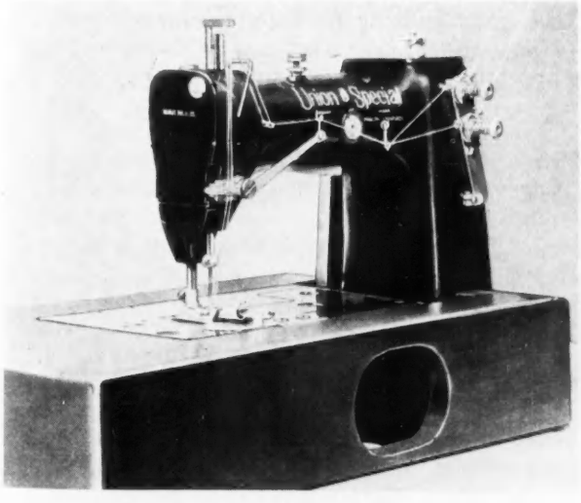
IT is announced by Scott & Williams, Inc., 366 Broadway, New York, that the 13- and 25-step-spiral B and HH machines may now be equipped with a three-color attachment. This device produces spiral patterns in two colors of yarns with the surrounding fabric of still another color—for example, a diamond pattern in one color having a center of a different color from the outer edge and still another color in the surrounding fabric.

This three-color effect is accomplished by causing the needles to pass the throat plate at three different heights and by feeding the different yarns to needles of each height. This arrangement makes it possible at designated points for either one or two of the three yarns to be floated. When two yarns are floated, the backing yarn alone shows on the face of the fabric. When only one yarn is floated, the intermediate yarn is plated over the backing yarn and shows on the face of the fabric. Where no yarns are floated—that is, in plain fabric—the facing yarn is plated over both the intermediate and the backing yarns.

Pleasing combinations of colors can be obtained on fine-gauge machines using rayon, Celanese, and silk. If desired, mercerized yarn may be used as a backing yarn in combination with the above yarns.

The essential new feature of this three-color attachment is the lower jack cams for two heights on both 13- and 25-step-spiral models. A pattern jack controlling any needle may be made to pass over either the higher or lower jack cams or entirely under both jack cams.

On the 25-step-spiral models, in order that certain jacks may be depressed just sufficiently to pass over the inner path of the lower jack cam, the selector-finger guide plate is in two sections, each adjustable independently of the other. By properly adjusting the plate, it is possible to cause certain jacks to be depressed a very small amount and thus cause them to rise over the low step of the lower jack cam. Jacks acted upon by a finger not controlled by a plate so adjusted are depressed in the usual way and pass entirely inside the lower jack cam. On the 13-step-spiral model an additional selector finger is supplied. This is used in conjunction with the one selector finger which is regular equipment on this model. The pattern in the cylinder jacks is cut in two banks, one directly above the other.



High-speed, flat-bed sewing machine

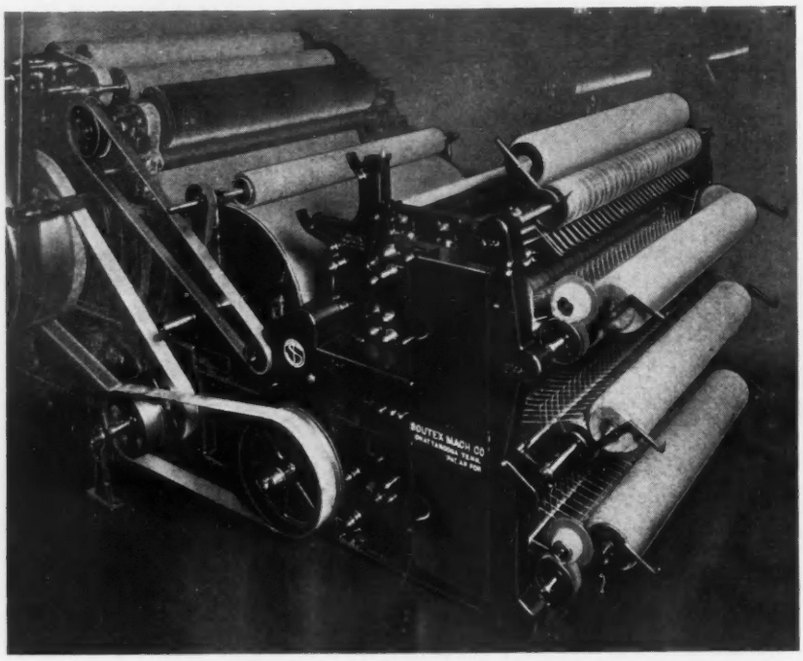
Flat-Bed Sewing Machines

DEVELOPMENT of new models of high-speed flat-bed sewing machines known as the 51,000 series has been announced by the Union Special Machine Co., 400 North Franklin St., Chicago. These new machines are designed for speeds as high as 4,200 r.p.m., and are being produced in a number of styles specially adapted to specific sewing operations.

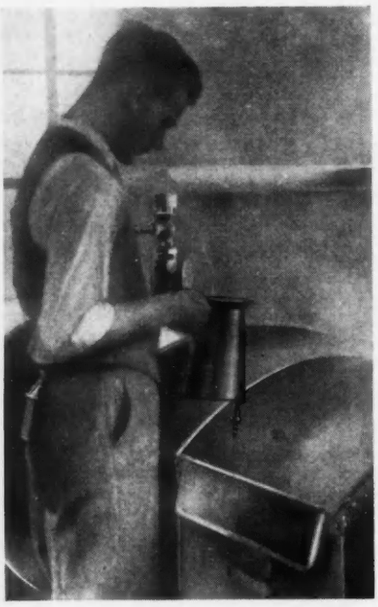
A point stressed by the manufacturer is the fact that because it has been found possible to enclose all main working parts, this machine is safer and more convenient for the operator despite its high speed. It is further stated that this feature, together with careful refinements in fitting, not only permits successful high-speed operation, but actually insures greater dependability and longer life for the machine.

Tape Condenser

SEVERAL unique features are embodied in a tape condenser recently placed on the market by the Soutex Machine Co., Chattanooga, Tenn. This equipment is designed to deliver a product of uniform quality,



Tape condenser in use with woolen card



Adding dyestuffs to hosiery dyeing machine with the aid of feeding device designed to give uniform distribution of the solution

and to permit high production without increasing manufacturing costs. The tape condenser is of the shallow-groove, four-bank, single-apron type. It is stated that as a rule the condenser allows 60 to 140 ends from 48-in. cards and 80 to 160 ends from 60-in. cards, according to range of sizes and quality of the stock used.

Among the improved features of the machine are chain-driven spool drums; one-chain apron drive, which permits the apron to be tightened without stopping the machine; and self-aligning bearings, which assure an easier drive and economy in power costs. Other improvements include roller eccentrics easily adjusted by one screw; three adjustable rollers for taking up play, and thus minimizing wear; and rolls which are easily accessible for cleaning through openings in the side of the frame. The apron tension rolls are easily adjustable and are specially designed to eliminate bracket breakage. In addition, the entire apron drive side is covered as a protection for mechanical parts.

Feeding Device for Dyestuffs

PRODUCTION of level shades on hosiery and other fabrics is facilitated with a new feeding device for dyestuffs developed by William H. Lorimer, of the Larkwood Silk Hosiery Mills, Inc., Charlotte, N. C. This device, which is being manufactured and marketed by Sholes, Inc., 182 Lafayette St., New York, consists of a Monel-metal container fitted with an outlet tube and control valve.

Use of this device enables the operator to feed dissolved dyestuff to any part of the dyeing machine at any rate of speed. The solution can be fed from the device with the outlet submerged in the dyebath or held above the surface as desired. Rate of flow is controlled by the outlet valve.

The usual method of adding dyestuff to a dyeing machine consists merely of pouring the solution from a dipper. When employing this method, regardless of how skillful the operator is, it is impossible for him to get a uniform flow of dyestuff when pouring it into the machine. For instance, when the operator first tilts the dipper and starts to pour the dyestuff across the machine, he pours a larger amount than he does when he has moved the dipper halfway across the machine. This irregular flow of dyestuff creates concentrated dyestuff pockets in the machine. In the case of hosiery which is dyed in nets, when these nets come in contact with the pockets of concentrated dyestuff, shaded work results. Since use of the new feeding device insures an even and uniform rate of feed and distribution to any part of the machine, danger of shading is reduced. It is stated, in fact, that necessity for sorting and pairing different shades in one lot is practically eliminated.

Individual Motor Drive and Control for Heavy Carpet Loom

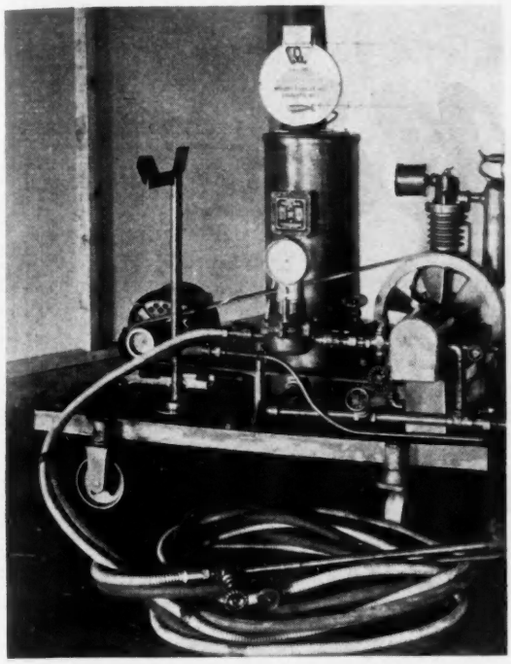
By W. A. Mayor

Industrial Engineering Dept., General Electric Co., West Lynn, Mass.

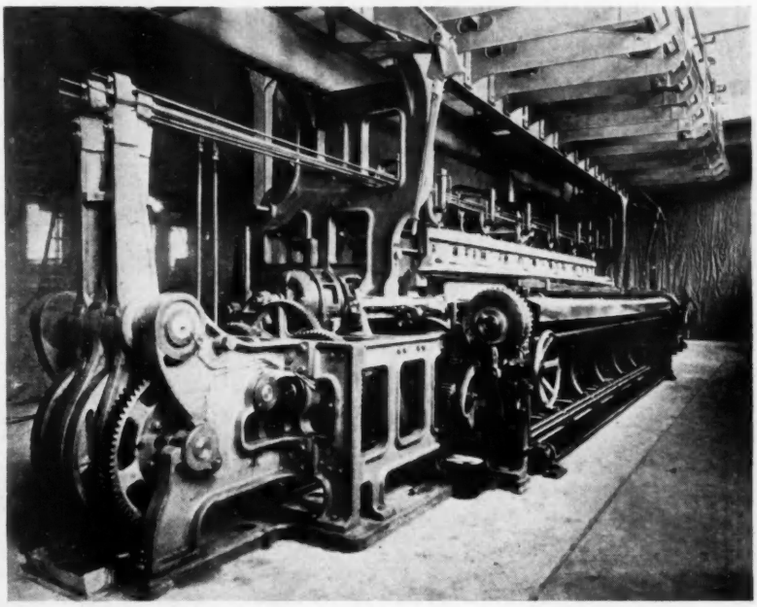
THE accompanying photograph shows a particularly wide and heavy carpet loom built for Bigelow-Sanford Carpet Co. and designed for individual motor drive. The loom weaves a seamless wilton carpet 18 ft. wide and operates at about 20 picks per minute.

Two high-starting-torque motors are used, rated 7½ hp., 600 r.p.m., 550 volt, 40 cycles, with double shaft extensions and equipped with motor-mounted solenoid brakes. The loom is gear driven, using double helical gearing at the motor.

A special arrangement of standard control is used to provide shipper-rod operation and automatic shutdown of the loom within six revolutions of the motor in case the shuttle fails to reach either end of the loom; a trip of 21 ft. is made every three seconds. The control is so arranged that the solenoid brakes can be operated independently of the motors in order that the loom may be moved either forward or backward by hand when making adjustments.



Complete unit for mixing, metering and spraying oils and emulsions



Individual motor drive and specially arranged control for carpet loom

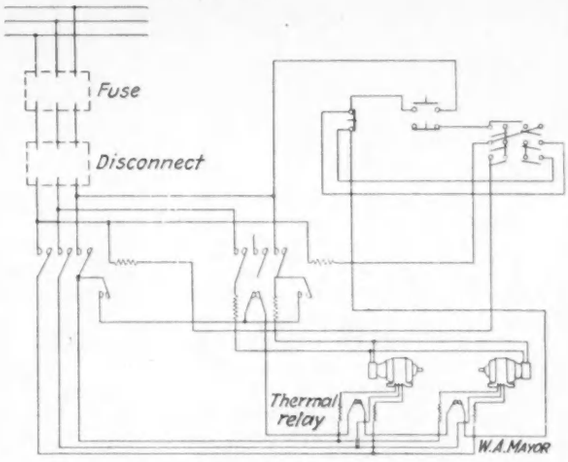


Diagram of wiring for individual motor drive and control on heavy carpet loom

The automatic stop feature was obtained by placing a limit switch in such a position that it opens the holding circuit of the magnetic switches by means of a dagger controlled by the binder on each shuttle box of the loom. The limit switch is normally closed and is operated only in case the shuttle does not reach the shuttle box in time.

A double-throw switch is used to obtain independent operation of the solenoid-brake circuit and the motor circuit in order to operate the loom by hand when adjustments are made. The diagram of connections shows the wiring of control used.

The assembly of this control is simplified by mounting the magnetic switches which control the motors, and the brakes, and the relay disconnect switch and fuse box all in one box, and installing it at a point remote from the loom. The limit switch, the push-button, operated by the shipper rod, and the changeover switch, are mounted directly on the loom.

Emulsifying, Metering, and Spraying Unit

ANNOUNCEMENT of automatic equipment for emulsifying, metering, and spraying oils, emulsions, solutions, and suspensions on wool, silk, rayon, sisal, or hemp, has been made by Herbert Hinckley, Inc., Charlotte, N. C. The unit, which is designated Model 2CA, consists of a mixer known as the Whale E-M-S unit, a combination indicating and recording meter, and an auxiliary tank with separate meter. All parts are mounted on a single base and are driven by an oversized electric motor. For mixing and storage, a 275-gal. tank is provided when ordered. The 10-gal. auxiliary tank is used to add borax solution, oils, or soaps, as required, gradually and in exactly metered quantities. A meter on this tank shows at all times just how much has been added. Three valves conveniently located control the entire operation of the machine. A 25-ft. length of combination special air-liquefying hose with spray gun gives one man a full sweep of 75 ft., thus enabling him to cover the largest batch with a minimum amount of movement. The whole outfit is mounted on wheels and can be easily moved from place to place. When several positions on different floors are used, an electric extension cable is provided. Two valves at the spray nozzle allow the operator at all times to control the volume and quality of the spray. The spray can be shut off completely at the spray nozzle whenever desired without danger of bursting the hose, as compensating release valves have been built into the unit.

Aromatics for Textiles

THREE aromatic oils designated as Tex-O-Dors Nos. 2, 3, and 4, have been introduced to the textile industry recently by Givaudan-Delawanna, Inc., 80 Fifth Ave., New York. These products are recommended for use in conjunction with finishing oils to overcome the slight rancid odor which ultimately develops in goods finished with many types of finishes. Each has a different and definite characteristic odor. Tex-O-Dors are used in the proportion of 4 oz. per 100 lb. of unemulsified finish. When the mixture has been made, the finish can then be emulsified and the process carried on in the usual manner.

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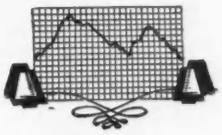
◆ *Survey of Fabric, Knit Goods, Yarn and Raw Material Markets* ◆

TEXTILE WORLD ANALYST



Pending New Developments Cotton May Go Lower

By Dr. L. H. Haney

THE activity in the domestic cotton manufacturing industry during February and March has not brought higher raw cotton prices. Evidently any improvement in demand has been offset by supply pressure. Although March cloth sales are said to have been large, and an increase in employment at cotton mills is reported, the profit situation remains unsatisfactory. Cotton manufacturers may well remember that silk manufacturing activity had a spurt in late 1930 at the expense of the profit margin.

Only a sustained demand can bring rising prices for cotton cloth or margins which will yield a profit, and evidence that such a demand is at hand are all too few. Indications that a sustained recovery in business has begun are lacking. The purchasing power of the laborers, farmers, and stockholders, continues to fall off. Automobile sales lag considerably behind production. Merchandise exports are very low.

On the supply side, the raw cotton situation grows steadily weaker. As the season's end nears, the prospective large carryover shows no sign of reduction. Curtailment of acreage for the new crop remains very uncertain. The Federal Farm Board's policy of supporting the market may change next season. Mill stocks are low here and abroad, but that may mean merely that the manufacturer desires someone else to "carry the bag." Nor do the stocks appear so low in comparison with the current rate of consumption.

Moreover, the continued fall in the general level of commodity prices, especially raw materials, means a gradual reduction in the estimated normal price of raw cotton.

Cotton prices, therefore, may be expected to meet resistance about 11.00c. And, pending the development of the inevitable weather markets later on and the possibility of a larger reduction in acreage than expected, the probability is that we shall see a further moderate reaction.

Bull Points

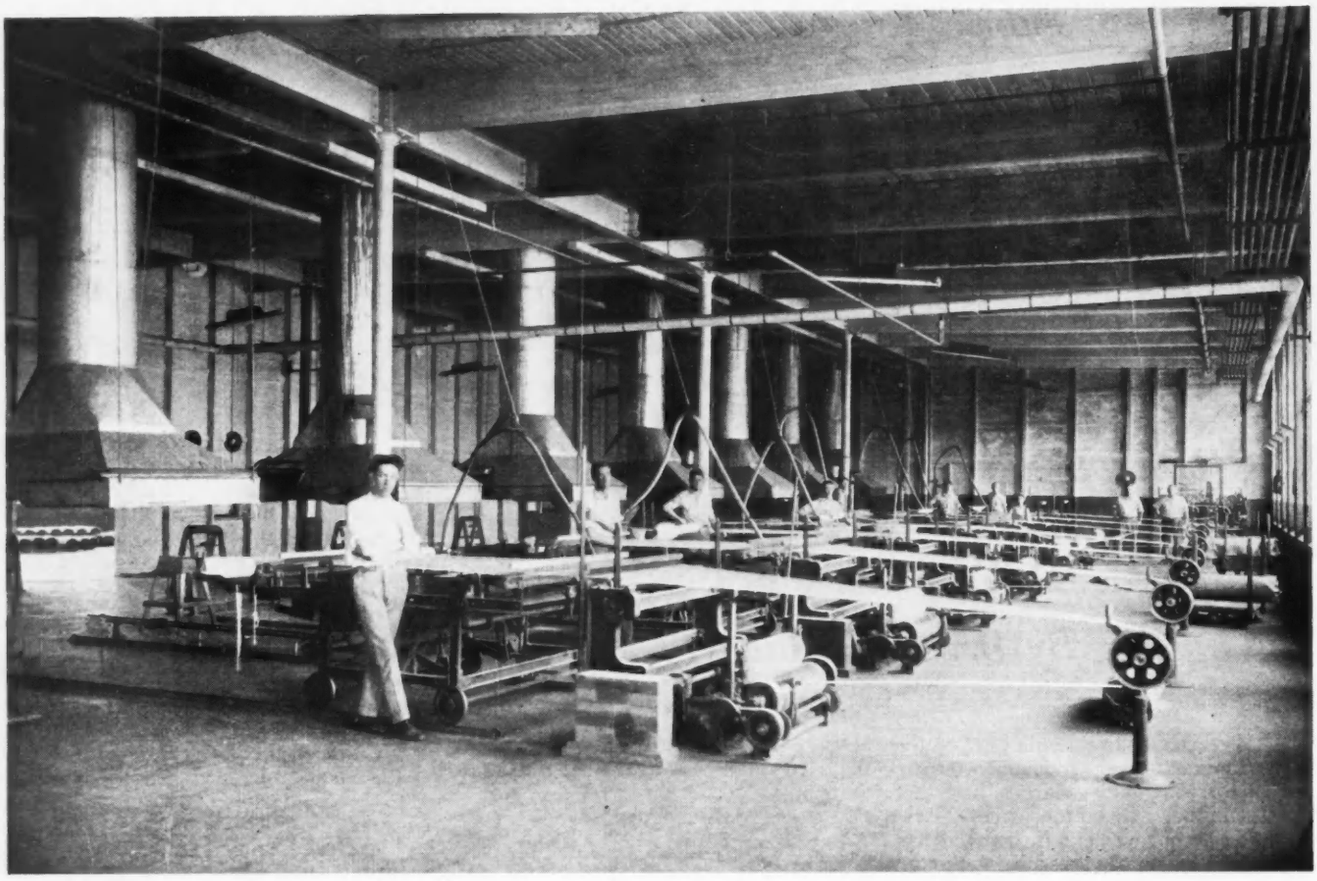
1. Possibility of a considerable new crop reduction; reduced sales of fertilizer; poor financial conditions indicate a probable reduction in acreage; subnormal moisture east of the Mississippi may lower the yield per acre.
2. Final ginnings report about 310,000 bales less than crop estimate.
3. The supply of Indian cotton is about 600,000 bales less than a year ago; probable shortage of Egyptian cotton.
4. Oriental conditions have improved; silver prices are stronger; an end to the boycott of British goods in India seems more hopeful.
5. Stocks of American cotton in the hands of foreign spinners are probably 250,000 bales below last year.
6. Stocks of cotton at domestic mills at end of February are the lowest for that date since 1925.
7. Deficit of exports compared with last season, reduced in recent weeks.
8. Domestic mill consumption has increased more than seasonally since December; spindle activity was greater in February.
9. Unfilled orders of carded sales yarn increased during January.
10. Yarn markets hold well; spinners have sufficient business to allow stronger price stand if production is held down.
11. Statistical position of cloth improved; stocks of standard cotton cloth the lowest since December, 1927 and unfilled orders the highest since September, 1929; the index of orders for gray yardage for finished cotton goods increased in January and February; stocks of finished cotton goods were the lowest on the ten year record.
12. Good scale-down trade buying.

Bear Points

1. Acreage reduction may be disappointing (not much over 10%); fertilizer sales have gained recently, and a larger proportion of home-prepared fertilizer will be used.
2. Total stocks of raw cotton in the United States are the largest on record for the season; the world visible supply of American cotton is also the highest for the season.
3. Disappearance is still small. Exports for the first 7½ months of the season were about 290,000 bales less than a year ago; consumption has fallen off in several European countries; India's political disturbances are still serious.
4. The world consumption of American cotton for the first half of the crop year was about 1,600,000 bales below last year; world consumption of foreign growth declined only about a quarter of a million bales, and for the first time

Summary: **An improvement in the domestic sales and statistical position of cloth and increased exports of American cotton are the most tangible items of a bullish character. Evidences of a rounding off in cloth sales and prices, and an increasing surplus of American cotton, are the main bear points. Pending new crop developments the market looks a little lower.**

The analysis and forecast by Dr. Lewis H. Haney, Director, New York University, Business Research Bureau, which regularly appears on this page, considers various branches of the textile industry from week to week. The conclusions reached in the Analyst are mostly forecasts and generally apply to a time two or three months ahead. The Analyst is based on statistical data and does not reflect temporary trade sentiment.



One of the Gassing Rooms for B&C Mercerized Yarns

Here the yarns are singed or gassed which removes all excess fuzz, giving them that smooth clean dressed up appearance, also more yardage per pound, much higher lustre and a better and cleaner fabric.

Most important of all gassed yarns actually cost you less than ungassed yarns. Write for prices.

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exceeded the world consumption of American cotton.

5. Stocks of carded sales yarns increased in January; spinners' replacement margins were lower in March, notwithstanding lower raw cotton prices.

6. Billings of finished cotton goods have increased more proportionately than orders for gray yardage; cloth prices have not advanced recently and manufacturers' replacement margins are near the post-war low.

7. Some let-down in demand for print cloth recently, especially for forward delivery.

8. January tire fabric consumption was below last year; tire mills reported to be less active recently.

9. Cotton is relatively dearer than silk and no cheaper than wool as a competitive textile fiber.

There has been no change in the action of the market during the last month which would suggest a change in the "upper resistance level" of 11.35c. for spot cotton at New York.

The changes in the statistical position of raw cotton, however, have been partly favorable. Activity in the domestic manufacturing industry and in exports have improved, and the position of cloth is the best in several years. Stocks of American cotton abroad are moderate, and domestic mills are running light. The lower ginnings estimate indicates a slightly less burdensome supply.

But, regardless of the increase in the disappearance of the supply, cotton is still being used in smaller quantities than a year ago and the carryover of American cotton will probably be larger even than was estimated earlier in the season. We believe that the current and prospective increase in the available supply are sufficient at least to offset the effect of the more optimistic developments, since these are more uncertain and are likely in part to be of a temporary nature.

Cotton Supply More Burdensome

The increase in February suggests the possibility that the total domestic consumption for the season may reach 5.2 million bales. Exports, notwithstanding recent improvement, will probably fall short of 8.0 million bales—say 7.9 million bales. This would indicate a probable maximum disappearance of 13.1 million bales for the season. The supply for the season has been reduced by the lower ginnings figure to 18.3 million bales (4.5 million bales carryover and 13.8 million bales ginned). The imports have been negligible in round numbers. Thus the difference between a total supply of 18.3 million bales and a total disappearance of 13.1 million bales would leave a carryover of at least 5.2 million bales. The figure may be nearer 5.5 million bales, if we consider the experience in previous depression years.

The tendency toward a larger domestic carryover is indicated by the supply curve in our General Cotton Barometer (Fig. 1). This index, which allows for seasonal conditions, is the highest for any month, but one, since

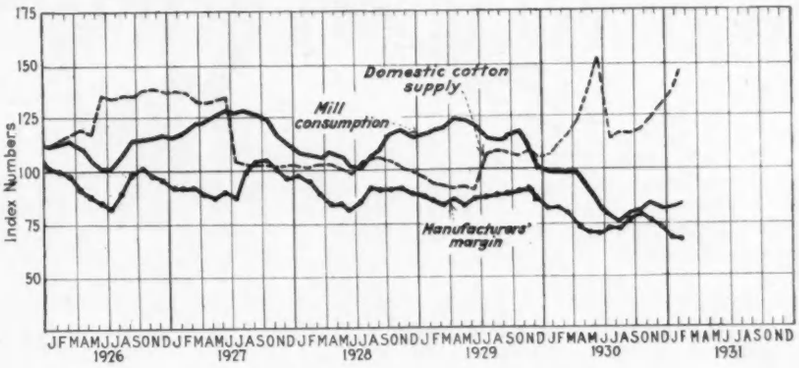


Fig. 1. GENERAL COTTON BAROMETER: Consumption—Average Daily Adjusted for Seasonal Variation, three-month moving average; Manufacturers' Margin—Average of Replacement Margins; Average Monthly Available—Net Domestic Available for Crop Year Adjusted for Seasonal Variation. 1921-1926 = 100 for all indexes

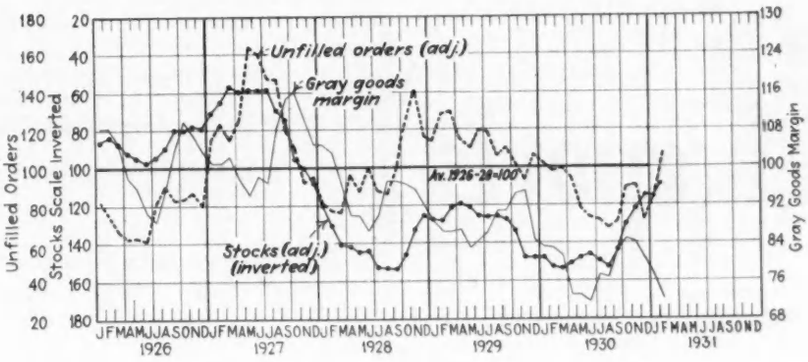


Fig. 2. COTTON CLOTH BAROMETER: Unfilled Orders, Stocks (inverted) Adjusted for Seasonal Variation, Cotton Textile Merchants. Gray Goods Replacement Margin Based on Textile World *Indexes. Average for 1926-1928 = 100 for all three indexes*

1921. As long as this curve is rising and at a high level, continued depression in raw cotton markets may be expected.

But we must consider the demand side. Here we find that mill consumption, though increasing, is at an unsatisfactory level and manufacturers' margins continue to make new lows. This is "profitless prosperity" and probably will necessitate curtailment, as proved to be the case in the silk industry.

It is entirely possible then that the rebound in cotton prices and production from the late 1930 levels may be followed by some secondary decline. The goal of business is not quantity output, but profits, and until general business and demand conditions show signs of sustained improvement, cotton manufacturers are likely to suffer a premature spurt in activity.

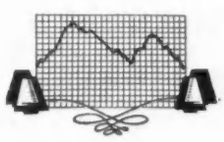
Despite the Pre-Easter spurt, a normal demand for raw cotton is not yet in sight and favorable developments seem to have been discounted. The market for goods tends to be held back by the decline in raw material prices and uncertainty in the stock market, should there be another bulge here, cotton might again run up above 11.00c.

Pending more definite new crop indications, the price of cotton is not likely to remain above 11.00c. Lower prices seem rather probable when the present spurt in production is over.

Yarn and Cloth Prices Weak

Sales yarn prices weakened in March and spinners' replacement margins declined. Probably production has been larger than demand conditions warranted; carded sales yarn stocks increased in January, and spindle activity increased rather sharply in February.

The decline in raw cotton in March has tended to restrict enthusiasm and to increase price resistance on the part of cloth buyers. Cotton cloth showed an improved statistical position in February, and March trade reports indicate further improvement. Unfilled orders probably are sufficiently large, and stocks are sufficiently low, to justify the assertion that if demand continues to improve a sustained rise in cloth prices and weavers' margins may be expected, and the downtrend since 1927 would be reversed. Stocks of finished cotton goods, too, are low. Production, however, has increased fairly rapidly compared with sales, and this together with the psychological effects of the setback in raw cotton has tended to delay the recovery in cloth prices and profits.



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1 65% more high-grade dress manufacturers made cotton dresses in 1930 than in 1929.

2 In 1930 retailers spent hundreds of thousands of their own dollars to promote cotton merchandise.

3 January, 1931, Paris openings stressed cotton frocks to such an extent that it was front-page news in metropolitan papers all over the United States.

4 Government cooperation in publishing and distributing booklets boosting cottons, such as "Speaking of Vacations" and "It's a Gift." Over 500,000 copies were distributed through retail stores.

5 In 1930 more than 10,000 individual theatre bookings of silent and talking newsreels featured cotton fashions.

6 This season cutters have gone to converters, requesting a preview of their new materials before the lines were officially cut.

7 Requests from 110 broadcasting stations in 37 states for weekly radio talks on cotton.

8 Great interest in styled cottons for shoes, millinery, bags and other costume accessories.

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YARNS AND RAW MATERIALS

TEXTILE WORLD ANALYST

◆Upholstery Strike Affects Cotton Yarns

UPHOLSTERY strike in Philadelphia is hurting carded weaving yarns. The principal count used by this trade is 30s-2 warps and as result of the strike spinners say they are delivering less of this than for many weeks. There are few indications that the situation is being remedied, although impartial bodies have been at work.

Head of Craftex Mills, Inc., one of the mills affected, offered a compromise with workers at reduction of 10% as against 14% ordered by the arbitrator pending a survey of whole matter. This was refused by the employee representatives.

Mills Not Busy

Manufacturers are anxious to have the wage problem cleared, but they are not in a position to be forced into action. Although they have some business on hand, they are not being rushed to make deliveries. As a result opinion is that employers themselves could not have picked a better time to settle differences with operatives than right now. Mills outside the city making the same class of goods as the Philadelphia group, are not busy even though their workers are not participating in the walkout.

March has been a poor month, the worst this year, for new business, but it has been the best month considering billings or shipments on contracts. Large orders were placed in February, on which shipments in March have been made. Although new business has been quiet, the fact that users are taking in yarns in volume is a bullish factor of the first importance.

Combed Stocks Smaller

Effect of the night work decision of combed spinners is being discussed, and the general feeling is that improvement long overdue is to be expected in combed yarns in the near future. Although many spinners are running less than half time, reports indicate that there has been a continuous depletion of stocks in recent weeks.

Combed yarns are low in price, and it is possible they will soon feel the effects of a condition where finer carded qualities are quoted at almost the same prices as combed. This means that a number of consumers who have used carded will turn to combed and merchandise goods at same prices, giving higher quality as a sales inducement. Clearing up of the banking situation in Gastonio, affecting the combed trade, has had a tonic effect upon the market.

Prices Are Easier

Feeling the trend of the raw material market, which has been easy, yarns have softened slightly this week. Sales of 20s-2 warps, average quality, are reported as low as 20c. although spinners quote 21c. as minimum; 30s-2 are sold at 25½c. and quoted at 26c. Spinners of these yarns are again in need of business and if demand does not pick up further easing is expected.

◆Cotton Works Lower Under Small Selling

THE decline which immediately followed the announcement of the Federal Farm Board policy in wheat, brought in sufficient trade buying and covering to cause moderate rallies. No general or aggressive demand developed, however, and prices have since sagged off again under renewed liquidation which may have been coupled with some southern and local selling. Southern selling was not much in evidence, while selling for short account may have been restricted by reports of unfavorable weather for farm work in the South and trading became quiet on the decline, with the market evidently awaiting fresh developments.

The news of the week has thrown little light upon the major uncertainties which are expected to dominate the future of the market. It is doubtful whether recent reports from the South have brought ideas of the acreage any nearer a focus. The Government report on spring planting intentions, which made no mention of cotton, showed an expected heavy increase of land planted to feed, forage, and food crops in the southern States. This was regarded as strengthening the prospect for a reduction in the cotton acreage. According to private compilations of the official figures the increase of acreage in these various crops in cotton growing States amounts to about 6,172,000 acres in spring sown crops, which the inclusion of the acreage reported to winter wheat and rye, bring up to about 7,432,000 acres.

This total acreage would be equivalent to about 16.1% of the area under cultivation in cotton at the first of last July, but there is no definite basis for assuming that the cotton acreage will be reduced commensurately with the acreage for other crops. Last season the increase in the acreage planted to other crops in southern States amounted to about 6% of the previous year's cotton acreage, while the decrease as indicated by the December revision of the cotton acreage for 1930 as reported by the Crop Reporting Board was something less than 2%. On the whole, therefore, the report on spring planting intentions carries little conviction as to the probable extent of the reduction in cotton acreage and estimates heard in the trade still range from about 8 to 15%.

Reduction in Use of Fertilizer

All reports still indicate a sharp reduction in the use of fertilizers, while some of the experts claim that the mild weather of this winter has probably led to an unusually large percentage of insect survival which threatens damage, from such causes during the growing season. Meanwhile low temperatures have been unfavorable for early planted cotton, and farm work of all kinds has been delayed by wet weather. Preparations were well advanced before the spring rains set in, however, and low temperatures for germination are hardly a matter of much importance when so little cotton has been put into the ground. On the whole, there is a feeling among local traders that the wet weather will benefit soil conditions to an extent which may offset any delay so far suffered in farm work.

No Stabilization of 1931 Crop

Nothing further has developed with reference to the Federal Farm Board's future policy in the cotton market. The expectation is quite generally expressed here that the Cotton Stabilization Corp. may take over any cotton remaining in the hands of the cooperatives at the end of the season, but the most general opinion is that there will be no stabilization in the 1931 crop. Estimates of the probable end-season carryover of American lint cotton range from about 8,500,000 up to 8,800,000 bales and the holdings of the Cotton Stabilization Corp., whatever they may be, will be included in this total. These holdings are not in the least likely to be sold in a way to hurt the market for the farmers' new

Market Briefs

Cotton: ***Dull market with lower tendency.***
Cotton Yarns: ***Quiet; prices barely steady.***
Cotton Goods: ***Fair spot demand; less contracting.***
Wool: ***Fair demand, supported by better world markets.***
Worsted Yarns: ***Swimsuit and sweater yarns active; prices firmer.***
Woolen Goods: ***Cut in men's wear helps tone.***
Silk: ***Sluggish; very light buying; prices hesitant.***
Silk Yarns: ***Spun and thrown yarns quiet; prices steady.***
Silk Goods: ***Prints cleared—often at a loss. Summer lines active.***
Rayon: ***Spirited movement reduces surplus. Good but unprofitable call.***
Knit Goods: ***Women's hosiery stronger. Underwear deliveries backward. Fair outerwear demand.***

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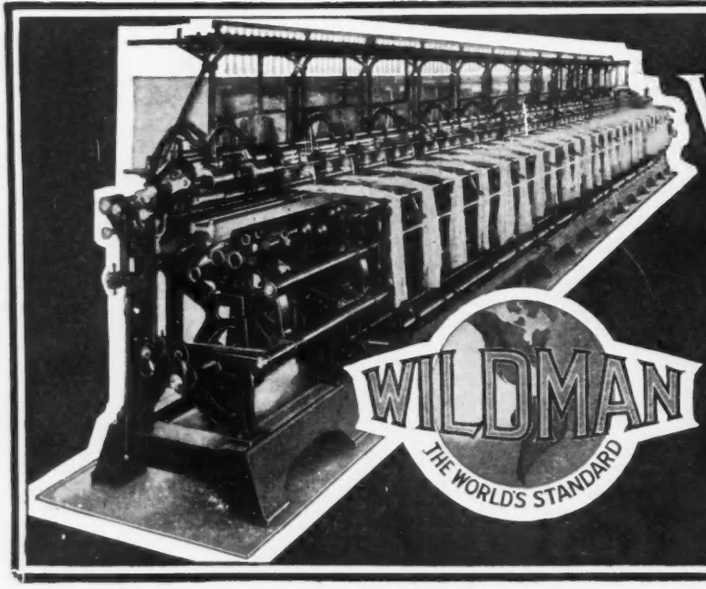

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YARNS AND RAW MATERIALS

TEXTILE WORLD ANALYST

crop cotton when it is moving in volume, but will have to be reckoned with ultimately.

MEMPHIS MEETS FAIR TRADE.

MEMPHIS, TENN., Mar. 30—While other southern spot cotton centers appear to have experienced a quiet week, business was quite active here; sales reported here represented nearly half the total for the ten designated markets; the total here was 19,771 bales against 8,288 last year and 12,689 the year before, making 634,447 for the season against 951,884 last year, and 813,548 the year before. The Memphis total was swelled by several crop lots, including one of 5,200 bales, eastern Arkansas cotton, sold to Japanese interests.

Receipts, light for the season, have been small since the beginning of the calendar year; unsold stocks are light and no matter what kind of cotton is wanted it must be picked up a little here and a little there; even then, sizeable, even-running lots are extremely difficult to get together. Demand still centers on bright low grade $\frac{7}{8}$ to $1\frac{3}{32}$ in., selling at 50 to 100 points better basis than a year ago, but demand for premium staples is general and fair as to volume, with basis practically unchanged from the previous week. Scarcity of the better grade staples is becoming more apparent and, while such cottons are to be found in fair quantities in buyer hands, they are strongly held.

Buyer stocks are large but are owned by a few large firms which were in a position to stock cotton when basis was cheaper. There is no disposition on the part of merchant owners of stock, as there was last year, to seek outlets through smaller merchants. The staple association says demand has been active and broad and that the unsold supply is inadequate if demand continues as it has during March.

◆Strips Feature Cotton Wastes

THE spurt in demand for high grade card strips recorded last week continues to feature the cotton waste market. Most of this business is being done in the South with manufacturers of coarse count cotton goods, although some Boston dealers report a fairly large turnover in these wastes, mostly for prompt shipment.

The only quotable change in prices was an advance of about $\frac{1}{4}$c. in Sak. comber, which sold in a small way this week on a basis of $8\frac{1}{2}$ to 9c. Peeler comber is quiet and unchanged in price. There is still a small call for threads, but machiners are not showing as much interest as they did a week or two ago. Willowed picker and fly are dull.

◆Large Knitting Sales Help Worsted Yarns

DUE to strength in Australian and South American wools there is a firmer tone in the yarn market. A number of spinners have advanced prices of fine yarns in which Australian wools are needed and smaller advances have been made effective in coarser counts in which South Americans have been used. It has not been necessary for buyers to pay these higher figures, but it is a trend that is becoming more significant.

Declines in prices this week have been less numerous than advances and may indicate that sales yarns have at last touched bottom. Knitting yarns, which react to demand and supply price changes more quickly than weaving, show no change this week. One of the largest spinners refuses to accept business less than $87\frac{1}{2}$c. for 2-20s, 50s, which he sold two weeks ago at 85c. The latter is still the market for good 50s grade.

FINE WOOLS STRONG

Yarns in which 64s and finer wools are necessary are strong due to the raw material situation and well informed operators in the market see nothing ahead to ease this situation. Further effects of it are to be expected when larger buying of heavyweight men's wear develops. This trade will have to buy just the grades that are firmest. In spite of this men's wear mixture yarns in 64s grade have not shown strength in recent weeks.

Men's wear manufacturers who buy sales yarns have not been active in the market. They have some orders placed with French and English spun mixture producers and feel that the present condition of the goods market does not permit them to go further.

BATHING-SUIT ORDERS

With weaving sales small, attention is centered for next few weeks on outerwear demand which is living up to expectations. Spinners are being rushed to make deliveries to bathing-suit and lightweight sweater manufacturers, who are asked to make prompt deliveries on these goods. As a result spinners are being asked to rush deliveries of both single and ply knitting counts.

Single English spun numbers are quoted at \$1.00 to \$1.02½ for 18s, but there are several important spinners who refuse to accept the lower figure. Two-ply numbers are firmer at 85c. level for 2-20s, 50s. Price-cutting is no longer apparent.

Good business among knitting yarn spinners is expected for several months. Last minute goods buying is going to force mills to place six months yarn business in three. To make everything possible out of this situation, spinners must work quickly.

◆Wool Values Tend Against Consumers

WOOL buying has become more general. Whether the market, as a whole will move to a higher selling level in the immediate future cannot be predicted with certainty, but most signs indicate the possibility of such an event. Any decline from current level seems unlikely, and this tightening up of wool will unquestionably have a firming influence on the goods market. Old clip wools are moving out much more freely and there is more of a buoyancy seen in wool circles. Both independents and cooperatives are selling quite freely. Domestic wool values have reached a stable basis. The mill buying taking place is apparently based on this fact. The price structure in the goods market has been strengthened considerably by the firmer raw material market.

The trend of values is moving slowly against the buyer. Some dealers are on the point of advancing their asking prices, yet are held in check by the fact that mills obtain the greasy wools they require without having to pay more money. The turnover is substantial and yet there is still much room for improvement. After months of relative inaction in medium wools, larger mill buying of quarter-blood wools, both fleece and territory, is encouraging. The movement is becoming quite general, options are also being taken on further quantities.

The independent wool trade is much more confident than a year ago, and expects to get its full share of the new clip at reasonable prices. Conservative action, only, is in evidence at the moment, but independent merchants thus far have made a better showing in securing mohair and wool than the marketing corporation.

Foreign wool markets continue firm to strong, an advancing tendency still in force. London sales are moving satisfactorily, the average selling level about 5% above the strong opening prices. The sales will close March 31. Australasian wools are moving higher. Merinos in Sydney are especially strong, while in Wellington there is strong competition for all types. South American markets are getting pretty well cleaned up.

The Bradford top market continues its upward surge, with 64s warp top now at $26\frac{3}{4}$d. and 70s. warp top at 29d. In the Boston market topmakers and spinners have sold fairly good weights of tops and yarns, sufficient probably to cover requirements of their customers up to July. On fine tops the price has

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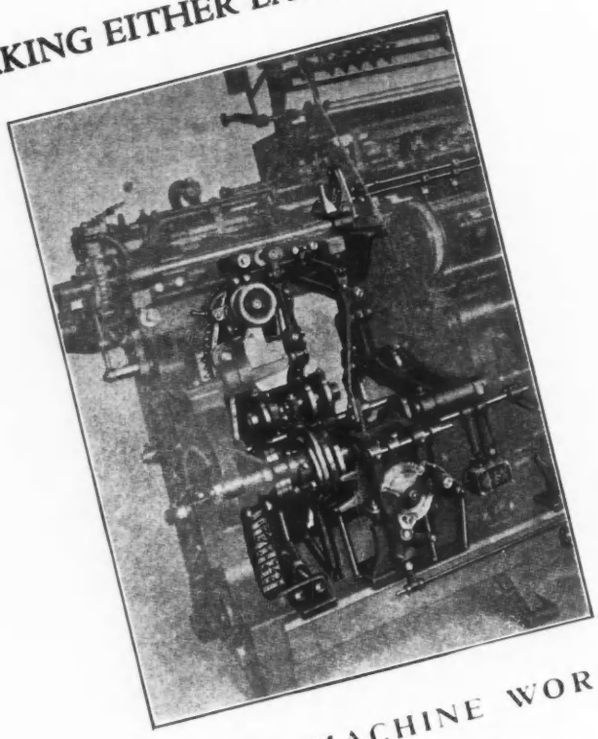

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YARNS AND RAW MATERIALS

TEXTILE WORLD ANALYST

been advanced by some topmakers to 88c.

The Texas mohair clip is moving rapidly out of the hands of the growers, who have found dealers and mills offering better prices than the cooperatives. On March 1 there were 888,000 lb. of Cape and Turkey mohair in bond Boston. During the last week 115,000 lb. of the Turkey hair has been declared for export for England. The South African mohair market is more active.

◆Woolen Raws Sense Better Demand

THE reworked wool and old rag division of wool substitutes may be expected to run into a more active period in the near future. Starting from current low level, a pre-war basis in not a few materials, an advancing tendency is likely to set in. The woolen industry, which is the outlet for the commodities of this market, ran about 55% of capacity last year, and, from all accounts, 70% for this year is within the bounds of probability.

Reworked wool manufacturers are offering a firm line of substitutes, all priced upon the prevailing low rag market. There is no price obstacle to larger business either in reworks or rags.

The English rag market is so low priced that despite current thin demand for knit stocks and clips in the United States, it is not unlikely that some speculation based upon purchases at bedrock prices may be seen in the near future. As an indication of the situation 170 bales of clips have arrived in Boston for month to date. Best white British knits are quoted in the Dewsbury market nominally at 53 to 56 shillings per cwt. and can be bought at less money. It seems that good white knit could be imported into the United States at this time around 30c, duty and freight included.

The turnover in wool waste is still lacking in volume but the trend of prices is slightly upward on the good sorts. White drawing lap is much firmer than it was at the beginning of the month also fine thread waste which, by the rise in the foreign market, is removed from fear of disturbing imports of cheap material.

Wool noil prices have advanced little for month to date. The turnover has been small, but values are steady. The broadening of the wool market to include the long neglected medium wools for combing purposes indicates, among other things, that the output of the combing mills will shortly afford a broader selection as well as larger quantities of the low and medium grades.

◆Thrown and Spun Yarns Quiet

A LULL has settled upon both the spun and thrown silk markets, and it is doubtful whether either will register any real improvement before the warm weather arrives, bringing its normal quiet spell. Throwsters have little to say about current conditions. Neither broadsilk manufacturers or hosiery knitters show any interest; business this week was limited to a few sporadic spot orders, all of negligible size. Stocks in throwsters' hands are light, which helps to hold prices steady.

Spinners are in a better position as regards price tone; quotations hold to prevailing levels, but demand has slackened steadily during the past ten days. Broadsilk firms are less optimistic than they were, with respect to shantungs. Spinners are not hopeful of any sustained improvement before summer; prospects point to a brief rush of reorders at the end of this month, followed by a gradual easing off, until the opening of the fall season which should develop about Aug. 1.

◆Raw Silk Sluggish; Prices Weaken

RAW silk is listless, with prices of the more popular sizes tending downward. Importers are buying very cautiously, for the double reason that Yokohama prices are firm, and that there is little real demand in the New York market. Broadsilk mills have slowed up on orders to the point where only immediate fill-in requirements are met. In a few widely scattered instances, there is serious future buying, but most trading is speculative, and even the spectacular is inclining toward conservatism. Weavers are discouraged by the losses they have suffered in the printed fabric slump. Then, too, they anticipate a further weakening of raw silk prices next month, which would facilitate bargain buying.

Importers report a moderately satisfactory first quarter. Nobody looked for highly profitable business, and the general feeling seems to be that this division has fared as well as could be expected, considering the depression.

There is little prospect of any further rallying by raw silk, certainly, no sharp inflation may be looked for. Hosiery mills probably will begin active buying next month, which would help the situation, though it is unlikely that enough business will come from that group to do more than steady the market. Some hosiery knitters have already shown interest, and a quantity of fair-sized orders were placed this week; importers also are receiving numerous inquiries from these knitters.

The tone in Japan is surprisingly strong, and importers have difficulty in getting exporters to quote prices that will allow normal profit. Stocks in Yokohama are limited, and exporters resist efforts to pull down their prices. It is improbable that Yokohama will hold firm for very long, though real weakness there may not become manifest until May. New York factors look for a heavy carry-over of old season silk in Japan, which would serve toward softening the market when the new crop is available. The Japanese are making real efforts to curtail the coming crop, but the American trade is not optimistic on that score.

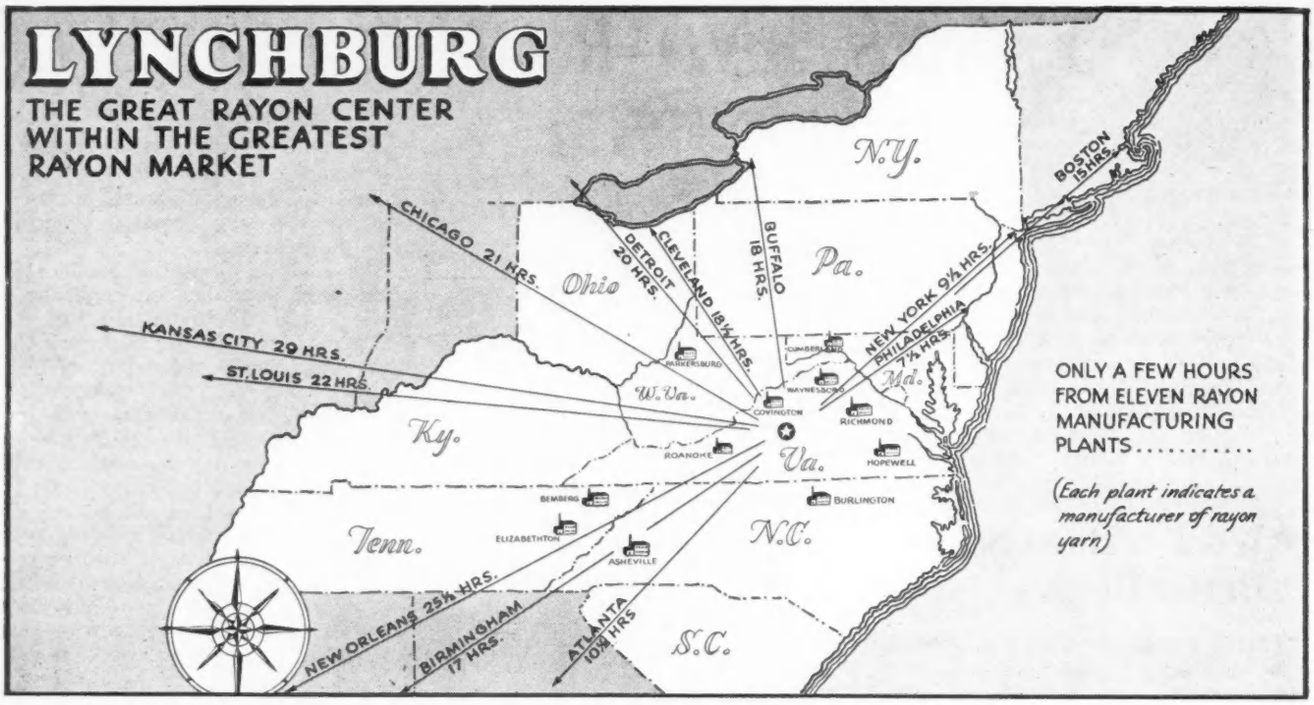
◆Rayon Stocks Shrink In Active Market

STEADY call from most of the leading industries, for a wide range of deniers, is having a healthy effect on the rayon surplus. It was estimated this week that yarn in hands of producers totals less than 15,000,000 lb., as against an estimated 25,000,000 lb. when the year started. Numerous producers are selling 48% to 60% in excess of output; stocks declined approximately 3,000,000 during March. The call comes from underwear and hosiery knitters and cotton and broadsilk weavers; cotton weavers and underwear knitters are particularly active. There is active demand for the finer filaments, from 50 denier to 100. Hosiery mills placed substantial orders for 125 denier this week. The bulk of the demand is for 150s, as usual.

The scale of current production is uncertain; a few producers are operating nearly 100% capacity, but the trade as a whole seems reluctant to increase output, and is holding to 75%, or even lower. Certain special yarns are short, and production has been increased to meet the demand at that end. The whole picture, so far as volume is concerned, is decidedly more favorable. Manufacturers grow increasingly confident, regarding prospects for next season, and are buying yarn both for spot and future delivery; one rayon company has written a good quantity of May business, already. It is noted that purchasers are less disposed to fight over prices, and report good movement of rayon merchandise.

Trading in "obsolete" yarns which was supposed to be a clearance affairs, to get rid of these discarded sizes, has continued beyond the normal period, indicating that certain companies continue to produce the "obsolete" yarns. The problem of when "obsolete" yarn should be

(Continued on page 67)



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FABRIC MARKET REPORTS

TEXTILE WORLD ANALYST

◆Cotton Goods Sales Smaller in March

ALTHOUGH accurate data for sales of cotton goods during the month of March had not been issued at time of going to press, market reports indicate that there was a substantial falling off in business as compared with totals for January or February. March was, however, a month of good demand for nearby delivery, but a poor one in comparison with the previous two from standpoint of forward contracts. This is largely a seasonal development, a little quieting down before Easter being a natural development.

Although this is a general picture of the market, there has been a good volume of business transacted by the larger houses during the last 10 days in gray goods, fine and fancy fabrics and toweling. Demand for narrow sheetings and drills has been lagging behind the others but activity in them is expected soon. Prices in the meantime are holding steady. Sheetings stocks show reductions from week to week.

Printer Buys Large Yardage

A feature of trading was the sale of approximately 12,000,000 yd. to a large printer. Goods were 38½ in. 64x60s and sold at 5½c., for delivery from April to August. The business was divided among three or four Worth Street firms. Several which did not take part in this trade stated that many mills would not figure so far ahead at current prices, and that they preferred to wait for better margins before accepting delivery up to August.

Although conditions vary, it is stated that most mills are able to make a small profit on the print cloths which have been selling most actively, such as 68x 72s, but are unable to break even on the coarser print cloths.

Stocks Reach New Low

Prices on print cloths are firm. This is to be expected as reports still show a decline in stocks, last week's figures showing a new low, less than two weeks' production of all print cloths being on hand. Early deliveries are much stronger than when June and later are being asked for.

Although mill reports indicate that there has been some expansion in operations in New England cotton mills, southern print cloth production still shows curtailment of 35% against an average of about 20% for the first quarter of 1930.

The primary goods market shows strong evidence of the growing popularity of cotton dresses for women, and fabrics used in such merchandise have been active, while other cotton goods, such as sheetings and drills, have been comparatively quiet. Diminishing stocks of the latter will help them in the next few weeks, while demand for dress gray goods will continue until summer season demands are over.

◆Men's Wear Lines Widely Sampled

OPENING of men's wear fancies during the last few days completed the showing of lines for the heavyweight season. All doubts concerning prices for fall goods have been removed, and there is now a more confident feeling among sellers that in the next few weeks a substantial volume of business will be placed.

Sellers assert that they are sampling the new lines more extensively than for several seasons. This may mean that early buying of fair proportions will be seen; yet it may mean almost nothing. There is nothing at hand upon which to predict what large consumers have in mind. They may take advantage of new low prices to order ahead or they may wait until they "see the whites" of customer's eyes.

New Prices Please Trade

There is a general feeling of congratulation among sellers who believe that they have named prices that are low or lower than raw material changes justified. Staples are 7½ to 10% lower than previous basis; overcoatings showed the same concessions; fancy piece dyes were 7 to 20c. lower, and fancy worsteds 20 to 22c. off from previous season.

Discussion in the market concerning new business is that demand is for plain fabrics which most sellers assume to mean staples. Several point out in this connection that plains do not mean what they formerly did and many plains today are really fancies. Most of the plains that are active are not piece dye serges for example, but include a wide range of small weave effects with combinations achieved by different colors in the weave.

Men's wear houses find a larger interest in unfinished worsteds. Western buyers are reported to be interested in more conservative patterns this season than has been the rule with them previously. Tailors have been the best operators at the openings so far, the group that is usually the last to buy new fabrics. Large clothiers have not placed large business and show little indication of changing this policy in the near future.

Women's Wear Stocks Smaller

Coatings, suitings and dress fabrics for women are less active and becoming more so as Easter approaches. Manufacturers are receiving some cancellations on coatings, but the volume is about equalled by new business booked. Mills, as a group, have held down inventories of spring goods to a low point and there will probably be less distress merchandise of this type after Easter than is usually seen.

New lines of coatings for fall will be shown this month and sellers are optimistic concerning placing of early business.

◆Growing Call for Shantungs, Chiffons

WITH print lines pretty well cleared —and in numerous cases, at a heavy loss — broadsilk manufacturers now are actively pushing shantung, chiffon and other summer fabrics. Demand from cutters-up for shantungs increases slowly, and weavers look for a good season at this end. Though it was reported earlier in the season that shantungs were being overproduced, the firms specializing in medium and high-priced fabrics regard their own prospects as satisfactory. There are substantial quantities of low-priced shantungs available, but the competition from that end is not regarded as serious. One sales manager of a leading broadsilk house said several of his cutter customers had tried low-priced shantungs and found them so unsatisfactory that they came back in a hurry; in one instance the cheaper shantung was a weighted fabric, which was decidedly inferior. He said it is particularly difficult to produce a shantung which is both low-priced and attractive.

Favor White Shantungs

Volume demand is for white shantungs; indications this week pointed to white as representing 80% of the shantung turnover with some firms. Certain novelty color effects are very active, however, and there is also a good call for the new shantung prints. Cutters see a healthy season ahead for shantung dresses with jackets of the same material, and are buying steadily; the peak of the season for these lines will develop next month.

Chiffons Promise Well

Garment manufacturers are still hesitant about summer chiffons, but a fair quantity of business has been placed, chiefly for large and small florals of rather conservative design. Fabric houses report only moderate stocks on hand, and they look for a steady chiffon turnover, with prices holding up, at least until mid-season. Certain plain flat crepes show activity; the market is very confident at this end, but so far sales have picked up slowly.

KNIT GOODS MARKETS

TEXTILE WORLD ANALYST

◆Spring Sweaters, Swim-Suits Moving

BATHING SUITS and spring sweaters share the honors as best-sellers in the outerwear field. Sweaters are eagerly sought for, as stores have little or no stock on hand, and mills are three weeks behind in deliveries. Plain pullover sweaters are preferred; color preference includes lively and subdued shades.

Polo shirts, especially cottons, are improving, and here too deliveries are backward; shirts made to retail at $1 head the list. Mill agents look for a good polo season, but not as good as last year. Rayon polos move unevenly, it is a bit early for these.

BRIGHT COLOR EFFECTS PREFERRED

Manufacturers report steady though conservative call for bathing-suits; orders are less than last year and there is talk of a possible shortage in May; it is pointed out that mills have been cautious in production and would be unable to meet any concentrated last-minute buying. Bright color effects are preferred in current reorders. Heavyweight sweaters, like heavyweight underwear, are decidedly backward, but orders begin to come in; all buying is of the "feeler" variety, and not much real business is looked for prior to the end of this month.

◆Spring Underwear Deliveries Backward

LIGHTWEIGHT cotton underwear moves spiritedly and mills are gradually catching up with their season. Prices hold steady, and orders are well in excess of stocks. As usual, when a season is eight weeks behind, there is a jam of buying, and distributors are pushing mills for quick delivery. Several leading companies are sold five weeks ahead and most of the trade asks three weeks for shipment. Agents believe spring underwear business is approaching the peak; they look for another six weeks of good, though perhaps not high-pressure business.

Most of the current demand is duplicate business, and there is plenty of that. The season is too concentrated, so far as production is concerned. Things were not promising in January when the buying should have become active, and mills slowed down production, with the result now that stocks are short and even capacity output cannot equal the orders coming in. Worth Street agents say they are losing considerable money because all orders are coming at once and they cannot fill them.

Rayon underwear also is improving, but the season is still early; manufacturers look for an active rayon demand toward the end of April. Heavyweight underwear is picking up slowly; this market is eight weeks late, but mills are in a satisfactory position due to carefully restricted production. The market hopes for a few weeks of active heavyweight business before the warm weather lull. Winterweight stocks will be light in August and rush buying then might bring a seller's market.

◆Women's Hosiery Active and Firmer

EACH week finds women's full-fashioned hosiery tending further toward a healthy position. Buying took a spurt, with the advent of Easter, and the opening of the last week of March saw active business. Knitters were much encouraged by the prospects and some Worth Street agents were enthusiastic. Full-fashioned retailing at $1.75 and $1 were in good call; orders exceeded stocks in many instances, and mills had difficulty in making deliveries.

There is still considerable distress merchandise available, but the quantity lessens every day. Mills have little trouble in getting their quoted prices; nobody takes the prospect of a price advance very seriously, the trade as a whole being satisfied with the firming. The prospect of a raise before fall seems unlikely. Distributors are growing more confident, and have begun to place substantial orders for 45-gauge full-fashioned, retailing at $1.25.

DANGER IN OVER-CONFIDENCE

The moral of the present strengthening, is to keep everlastingly at it; the firmness is due mainly to the curtailment, and will continue only as long as mills keep their stocks at minimum. There is danger now of manufacturers growing over-confident and producing for stock. Such a policy would offset all the gains achieved thus far. Current full-fashioned sales are nothing to enthuse about; the total is below normal, and even with prices firm, the margin is meager. However, indications point to a profitable year, provided stocks are held in strict conformity with orders.

Several Worth Street agents are doing an active business selling full-fashioned to the Philadelphia mills that have been hit by the strike. These mills are acting as jobbers temporarily in order to keep their customers, and have placed good-sized orders with New York representatives of southern companies.

Men's hose is selling well, but at prices which allow little or no profit. There is considerable distress goods going at bargain rates. Most orders are for half-hose retailing at 25 to 50c. with a lighter call for the three-for-a-dollar lines. Stocks are in excess of sales, and a buyer's market prevails. A few mills are selling ahead and claim to be getting list prices; one plant is sold up to September; these however, are exceptions. Half-hose is slightly stronger than last week, and there is promise of a further improvement in April, provided the weather warms enough to stimulate active buying.

◆

Full-Fashioned Hosiery Output Sharply Declines

Hosiery production in February was slightly below that of January, according to preliminary figures announced by the Bureau of the Census, and based on reports furnished by 165 identical manufacturers. The February output totaled 1,476,719 doz. pairs against 1,496,418 doz. in January. The decline was most notable in women's full-fashioned, and showed the results of the curtailment drive being conducted in that division. Women's full-fashioned output in January was 383,094, falling to 361,437 in February. Infants' and children's lines showed declines. An interesting feature of the report was that output of women's seamless rose from 165,561 in January to 169,625 in February. Men's seamless and men's full-fashioned both showed a slight increase in output in February. With most groups tending toward greater output, it was only the downcurve in women's full-fashioned which brought the total below the preceding month. Net shipments for February showed a slight increase, the figures being: February, 1,483,531 against 1,454,997 in January.

Jantzen Sales Show Trend

Advance orders for swimming suits indicate retailers are more hesitant this year in making future commitments, J. A. Zehntbauer, president of the Jantzen Knitting Mills, Portland, Ore., stated, following a study of six months' operations. Orders booked during the six months ended Feb. 28, aggregated 773,112 suits, compared with 1,110,564 suits for the like part of the previous year. Yet, indicating how spotted months may be, last January was the largest month of the company's history, running 8% above January of 1930. Export orders, not including Europe, show a gain of 10%. European purchases have also shown an increase.

TEXTILE FINANCIAL NEWS

TEXTILE WORLD ANALYST

◆Cannon Mills Report Profit for 1930

CANNON MILLS CO. is among those textile firms which made profit for the year 1930. The company's report, for year ended Dec. 31, 1930, p.aces net income at $1,544,638, after depreciation, interest, federal taxes, etc., equivalent to $1.54 a share on 1,000,000 no-par shares of capital stock. This compares with $4,160,067, or $4.16 a share, in 1929. Net sales and commissions totaled $24,104,363 as compared with $30,464,093 in 1929. Inventories show a decrease from $7,856,946 to $6,982,835.

The consolidated balance sheet of Cannon Mills Co. shows a slight gain in the cash position and a reduction of inventories. The company's surplus, at $8,155,347, was $293,698 under the year previous.

Consolidated Textile Loss

The Consolidated Textile Corp., cotton goods, New York City, and the Consolidated Selling Co., Inc., for the fiscal period from Dec. 28, 1929 to Jan. 3, 1931, report a net loss of $2,411,199 after all charges, and after first preferred dividends on the 8% Consolidated Selling Co. stock. This compares with net loss of $926,869 in the year ended Dec. 28, 1929. In his report to stockholders President Frederick K. Rupprecht stated that loss from operations last year totaled $1,294,571 after all expenses but before depreciation, dividends and interest. Because of the unsatisfactory manufacturing situation it became necessary to close six of the company's southern plants. In addition the mill at Bonham, Texas was sold to local interests in January of this year. The installment of interest due Dec. 1, 1930 on the $2,750,000 first mortgage 8% sinking fund gold bonds was defaulted and a bondholders' protective committee was organized. The July 15, 1930 interest installment on the $6,569,500 five year 7% gold notes was defaulted also; the second preferred and common stocks of Consolidated Selling Co. are pledged as security for these notes, and noteholders have the right to realize on the pledged securities in the event of default of interest. Working capital on Jan. 3, 1931 totaled $2,719,262, as compared with $5,014,881 on Dec. 28, 1929; during this period quick assets shrunk from $8,181,259 to $4,501,045, and quick liabilities from $3,166,378 to $1,782,683. The decrease in liabilities was due mainly to payment of $1,500,000 of notes payable.

Manville-Jenckes Report

Dexter Stevens, president and general manager of the Manville-Jenckes Co., of Pawtucket, and State Tax Commissioner Zenas W. Bliss went before the Superior Court March 30 with their report as temporary receivers of that company. The report, covering the period from Feb. 27 to March 10, was approved and confirmed under a decree entered by Judge Alexander L. Churchill. Compensation of $1,200 was allowed to each receiver and the temporary receivers' counsel were allowed a fee of $1,500.

Receipts under the temporary receivership were approximately $244,000 and disbursements during the same period amounted to $130,000.

When the question of appointing permanent receivers for the Manville-Jenckes Company came before the Superior Court on March 10, Mr. Bliss and George R. Urquhart, of Hempstead, L. I., were named. Subsequently announcement was made that operation of the concern's mills would continue under the direction of Mr. Stevens.

Seek Tax Abatement

The Whitman Mills is the most recent of New Bedford mill corporations to petition the Board of Assessors for an abatement of 1930 taxes, and at the same time to seek a reduction in valuation for 1931. The mills seeking abatements are Booth, Butler, City, Fisk, Gosnold, Grinnell, Hathaway, Neild, New Bedford Cotton, Pemaquid, Pierce Mfg. Co., Pierce Ltd., Potomska, Quissett, Soule, Taber, Wamsutta and Whitman.

The attorneys and representatives of the New Bedford Cotton Manufacturers Association have submitted tables showing that the present valuation, ranging from $12.98 in the case of the City to $22.89 for the Booth, averages $17.50 per spindle. For the purpose of comparison, the average valuation of $11.33 per spindle is quoted in the case of Fall River mills. There is a lower tax rate in New Bedford, but even allowing for this advantage, the New Bedford tax per spindle calls for 8.19c. more than in Fall River.

Financial Briefs

The financial statement of the Duplan Silk Corp. and its consolidated subsidiaries shows net profit for the nine months ended Feb. 28, 1931, after allowance for depreciation and Federal taxes, of $281,707. This compares with $270,304 reported for the six months and $1,123,501 for the corresponding nine months of the preceding fiscal year. After deducting $240,492 preferred dividends paid during the period, there remained $41,215 applicable to the 299,200 common shares outstanding or 13.77 cents per share.

Canadian Celanese Ltd., Drummondville, Que., recently presented its annual report for the year ended Dec. 31, 1930, revealing operating profits of $1,253,529 before depreciation, income tax and other charges. This compares with $527,519 in the previous year and $13,257 in 1928. Net income after all charges and setting up a contingency reserve of $100,000, totals $811,512, which compares with $365,317 in the previous year. The preferred stock earned its dividends for the first time since the company's organization, and the first dividend was paid.

Only four of the 23 Fall River textile mill companies listed by G. M. Haffards & Co., brokers, paid dividends during the first quarter. Of these four, two were in partial liquidation—the Flint Mills with 35% and Union Cotton Mfg. Co. with 10%. The other two which paid regular dividends were Luther and Sagamore, each with 2%.

Textiles on N. Y. Exchanges

The following shows the movements of the leading textile stocks listed on the New York Stock Exchange and Curb for the week ended March 31.

	High	Low	Last Sale	Net Change
Adams Millis	32	30⅛	32	+1
*American Thread, pfd	3⅛	3⅛	3⅛	....
American Woolen	10⅜	8⅛	8⅜	—1⅜
American Woolen, pfd	38¼	32¼	34½	—3½
*Assoc. Rayon, pfd	60	59	60	+ ⅛
Belding-Heminway	3	2⅜	2⅜	+ ⅛
*Blumenthal	17	16½	16½	— 1
Botany Mills, A	2	2	2	....
Cannon Mills	24	23½	24	—1
Century Ribbon	5⅛	5⅛	5⅛	+ ⅛
Collins & Aikman	15⅜	12⅜	13⅛	— ⅛
Consolidated Textile	1⅛	1	1	— ⅛
Gotham Hosiery	8	8	8	....
Industrial Rayon	79⅜	67	75	—5⅛
Kayser, Julius	21⅜	20	20½	—1⅛
Kendall, pfd	57	51	51	+5⅛
Mallinson	4	3⅛	3⅛	— ⅛
*Mock Judson	9	9	9	—1
Mohawk Carpet	17	16⅛	17	—1
Munsingwear	27⅛	27	27¼	—1⅛
Pacific Mills	25	23	23	—2¼
Real Silk Hosiery	23	21½	21½	—1½
*Tubize—Chat. B	9	7⅞	7⅞	—1
United Piece Dye Works	29	27⅛	27⅛	—1⅜

*Listed on Curb.

Rayon Stocks Shrink

(Continued from page 63)

withdrawn from the market is a moot one, at the moment; the difficulty is that each producer wants to continue selling these stocks as long as the other, and will keep on producing the yarn, rather than miss sales. As one producer pointed out, the whole problem would have been solved, if a general date for discontinuance of "obsolete" yarns had been set. Present prospects point to indefinite continuance of these yarns.

Rayon waste is somewhat more active this week, with worsted manufacturers placing moderate orders, and prices slightly firmer. There has been moderate call for bleached thread waste at 7c. and some open bleached has sold at 14c. The low prices which have prevailed in the selling of waste have naturally weakened the prices being paid to rayon producers for this by-product, and there is discussion among some leading rayon companies as to whether it is worth while to continue conserving waste. Prices being paid by dealers are so low they scarcely cover the costs involved in segregation of waste.

QUOTATIONS

at close of business, Apr. 1, 1931
Prices cover average qualities unless otherwise stated

Cotton Goods

	April 1	Mar. 25	April 2 1930
PRINT CLOTHS			
27 -in., 64x60, 7.60	3¼–4c.	3¼–4c.	4⅛c.
38½-in., 64x60, 5.35	5⅛–5½c.	5½c.	6¼c.
39 -in., 68x72, 4.75	6½–6⅝c.	6⅝–7c.	7⅛c.
39 -in., 72x76, 4.25	7⅛–7⅜c.	7⅛–7½c.	8⅛c.
39 -in., 80x80, 4.00	7⅓–7¾c.	7⅝–7¾c.	9c.
BROWN SHEETINGS			
36-in., 56x60, 4.00	5⅛c.	5⅛c.	7⅜–7⅞c.
36-in., 48x48, 3.00	6⅛c.	6⅛c.	9 –9¼c.
37-in., 48x48, 4.00	5¼c.	5¼c.	6¼–6⅝c.
PAJAMA CHECKS			
36½-in., 72x80, 4.70	6⅛c.	6⅜c.	7½–7⅜c.
36½-in., 64x60, 5.75	5¼–5⅜c.	5¼–5⅜c.	6⅝–6½c.
MISCELLANEOUS			
Drills, 37-in., 3 yd.	6⅜c.	6⅛c.	9 c.
Denims, 2.20	12 c.	12 c.	15c.
Tickings, 8 oz.	15½c.	15½c.	18½–19½c.
Standard prints	7⅛c.	7⅛c.	9⅛c.
Eastern staple ginghams, 27-in.	8 c.	8 c.	10 c.

Cotton Waste

Peeler comber	9 – 9⅛
Peeler strips	8 – 8⅜
Sak. comber	8½– 9
Choice willowed fly	4 – 5
Choice willowed picker	3 – 4
Sak. strips	10 –10½
Linters (mill run)	2½– 3½
White spooler (single)	7 – 7½

Cotton Yarn

CARDED (Average Quality)

Double Carded 2c.—4c. higher according to quality

SINGLE SKEINS OR TUBES (Warp Twist)

4s to 8s	$0.17½– .18	22s	$0.22
10s	.18 – .18½	24s	– .23
12s	.18½– .19	26s	– .24
16s	– .20	30s	– .25
20s	.20 – .20½	40s ex.qual.	– .35

TWO-PLY SKEINS AND TUBES

8s-2	$0.18	26s-2	$0.24 – .24½
10s-2	– .18½	30s-2	– .25½
12s-2	– .19	36s-2	– .31½
14s-2	– .19½	40s-2	– .33
16s-2	– .20	40s-hi.brk.	– .36
20s-2	– .20½	50s-2	– .41
24s-2	– .23½	60s-2	– .50

SINGLE WARPS

10s	$0.19	24s	$0.23 – .23½
12s	– .19½	26s	.24 – .24½
14s	– .20	30s	– .26
16s	– .20½	40s.ex.qual.	.36 – .37
20s	– .21		

TWO-PLY WARPS

8s-2	$0.18 – .18½	24s-2	$0.24
10s-2	.18½– .19	26s-2	– .25
12s-2	.19 – .19½	30s-2	– .26
14s-2	.19½– .20	40s-2 ordin.	– .33
16s-2	.20 – .20½	50s-2	– .41
20s-2	– .21	60s-2	– .50

8s-3 and 4-ply skeins and tubes; tinged, 17; white, 18; waste, 16½

HOSIERY CONES (Frame Spun)

8s	$0.18½	22s	$0.21½– .22
10s	.18½– .19	24s	.22½– .23
12s	.19 – .19½	26s	.23½– .24½
14s	.19½– .20	30s tying	– .24½
16s	.20 – .20½	30s reg.	– .26
18s	.20½– .21	30s ex.qual.	.28 – .28½
20s	.21 – .21½	40s	.33 – .34

COMBED PEELER (Average Quality)

TWO-PLY—(Knitting Twist) Cones

20s-2	$0.32 – .33	60s-2	$0.50 – .52
30s-2	.36 – .37*	70s-2	.60 – .62
36s-2	.38 – .39	80s-2	.72 – .74
40s-2	.39 – .41	90s-2	.88 – .90
50s-2	.45 – .46	100s-2	1.08 –1.10

WARPS, SKEINS AND CONES

TWO-PLY—(Warp Twist)

20s-2	$0.33	60s-2	$0.51 – .53
30s-2	– .37	70s-2	.61 – .63
36s-2	– .39	80s-2	.73 – .74
40s-2	– .41	90s-2	.89 – .90
50s-2	– .46	100s-2	–1.10

SINGLES

12s	$0.27½– .28	30s	$0.35 – .36
14s	.28 – .28½	38s	.38 – .39
16s	.28½– .29	40s	.39 – .40
18s	.29 – .29½	50s	.45 – .46
20s	.30 – .30½	60s	.51 – .52
24s	.31½– .32½	70s	.61 – .62
28s	.35 – .36	80s	– .72

MERCERIZED CONES—(Combed, Ungassed)

26s-2	$0 49 – .50	90s-2	$1.28 –1.29
30s-2	.51 – .52	100s-2	1.58 –1.59
36s-2	.54 – .55	120s-2	1.98 –1.99
40s-2	.57 – .58	30s	– .63
45s-2	.59 – .60	40s	– .68
50s-2	.61 – .62	50s	– .75
60s-2	.69 – .70	60s	– .83
70s-2	.81 – .82	70s	– .95
80s-2	.93 – .94	80s	1.15 –1.17

Cotton Prices and Statistics

FLUCTUATIONS OF FUTURES

	Closed Mar. 26	For Week—High	For Week—Low	Closed April 1	Net Chge.
April	10.71	10.73	10.47	10.47	—.24
May	10.81	10.92	10.55	10.57	—.24
June	10.93	10.94	10.69	10.69	—.24
July	11.05	11.16	10.80	10.81	—.24
August	11.16	11.16	10.92	10.92	—.24
September	11.27	11.27	11.02	11.02	—.25
October	11.37	11.47	11.11	11.12	—.25
November	11.45	11.45	11.22	11.22	—.23
December	11.54	11.66	11.32	11.33	—.21
January	11.61	11.75	11.43	11.43	—.18
January	11.61	11.75	11.43	11.43	—.18
February	.....	.....	.....	11.52	.....
March	.....	11.74	11.61	11.61	.....

SPOT FLUCTUATIONS FOR WEEK (Middling)

	New York	New Orleans	Liverpool
Thursday, Mar. 26	10.80	10.59	•5.86
Friday, Mar. 27	10.85	10.59	5.85
Saturday, Mar. 28	10.80	10.54	•5.88
Monday, Mar. 30	10.70	10.49	•5.81
Tuesday, Mar. 31	10.70	10.43	5.83
Wednesday, April 1	10.55	10.33	5.83

FOREIGN COTTONS
Egyptian Cotton

Alexandria Exchange, Mar. 31		Change
May Sak.	16.94	—0.46
April uppers	12.08	—0.31

Apr.-May Shipment c. i. f. Boston
(Tariff not included)

Fully good fair Sak	19.30
Fully good fair to good Uppers	14.75

(By Anderson, Clayton & Co.)

Foreign cottons	F. O. B. New York, Cents
Peruvian Tanguis Strict Middling	20
Peruvian Pima No. 1	20
Peruvian Moderate Rough	17
Peruvian Full Rough	21
China Tientsin No. 1	10½
India Rough	7 to 10
India Smooth	7 to 10

(By Gerald G. Loeb, New York.)

BASIS MIDDLING

	Saturday, Mar. 28	Saturday, Mar. 21
10 Markets average	10.17	10.30
Memphis	9.65	9.75

PREMIUM STAPLES

First Sales from Factors Tables at Memphis

Grade Strict Middling	Prices Steady
1⅛-in	12.40—12.65c.
1 3/16-in	13.90—14.10c.
1¼-in	18.50—19.00c.

CURRENT SALES

	For Week	Prev. Week	Week Before
Memphis total	19,771	10,953	16,883
F.o.b. included	11,097	8,342	10,892
10 markets	41,738	40,879	45,903

MEMPHIS RECEIPTS, SHIPMENTS, ETC.

	For Week	Last Year	Year Before
Net receipts	8,730	6,165	13,351
Gross receipts	18,629	20,536	31,185
Total since Aug. 1, net	617,396	892,770	794,323
Shipments	23,666	33,528	34,055
Total since Aug. 1	1,072,072	1,475,247	1,472,732
Total stock	288,210	360,861	222,066
Decrease for week	5,037	12,997	2,870
Unsold stock in hands of Memphis factors	29,564	50,184	.....
Decrease for week	7,888	2,487	.....

AVERAGE PRICE APR.-MAY SHIPMENT HARD WESTERN COTTON

F.o.b. New England

	Middling	St. Middling
1 1/16-in	13½–13½c.	13½– 14c.
1⅛-in	14 –14½c.	14½– 15c.
1 3/16-in	15½–16½c.	16½– 17c
1¼ in	20 –22c.	22 – 24c.

Basis on New York, May 10.68c.

SPOT FLUCTUATIONS AND STOCKS

Markets	Middling Mar. 25	Middling April 1	Stocks Sales	Stocks This Week	Stocks Last Year
Galveston	10.65	10.50	3,362	560,313	293,275
New Orleans	10.59	10.33	4,984	772,532	439,661
Mobile	9.90	9.80	572	242,638	15,708
Savannah	10.33	10.08	1,912	361,788	45,751
Norfolk	10.50	10.31	498	86,586	53,134
New York	10.80	10.55	.....	228,490	93,715
Augusta	10.13	10.00	1,143	95,706	85,382
Memphis	9.60	9.45	12,830	279,031	346,759
St. Louis	9.80	9.70	.....	9,955	10,864
Houston	10.60	10.35	5,475	1,207,557	812,911
Dallas	10.05	9.80	3,841	13,210	11,797

DIFFERENCES ON AND OFF MIDDLING
WHITE GRADES

	Dallas	Memphis	Montgomery	Augusta	Average
M. F	.75†	1.00†	.85†	.75†	0.88†
S. G. M	.60†	.75†	.75†	.63†	.70†
G. M	.50†	.50†	.60†	.50†	.52†
S. M	.35†	.25†	.35†	.25†	.31†
S. L. M	.50*	.75*	.50*	.50*	.51*
L. M	1.25*	1.25*	1.25*	1.25*	1.27*
S. G. O.**	2.00*	1.80*	2.25*	1.75*	2.06*
G. O	2.75*	2.00*	3.00*	2.25*	2.71*
YELLOW TINGED					
G. M	.50*	.75*	.50*	.50*	0.58*
S. M	.75*	1.00*	1.00*	.75*	0.93*
M.**	1.50*	1.25*	1.50*	1.25*	1.43*
S. L. M	2.00*	1.75*	2.15*	2.00*	2.02*
L. M.**	2.75*	2.00*	2.75*	2.75*	2.70*
YELLOW STAINED					
G. M	1.50*	1.75*	1.50*	1.25*	1.48
S. M.**	2.00*	2.00*	2.00*	2.00*	2.03
M.**	2.75*	2.50*	2.75*	2.75*	2.73
BLUE STAINED					
G M.**	1.50*	1.50*	1.50*	1.50*	1.53*
S. M.**	2.00*	1.75*	2.00*	2.00*	2.03*
M.**	2.75*	2.25*	2.75*	2.75*	2.70*

**Grades not deliverable on contract. †On Middling *Off Middling.

Wool

OHIO, PENNSYLVANIA AND WEST VIRGINIA (IN GREASE)

Fine delne..	$0.29 –$0.30	¾ blood.....	$0.23 –$0.24
Fine clthg ..	.22 – .23	¼ blood.....	.22 – .23
½ blood.....	.26 – .27		

TEXAS AND CALIFORNIA (CLEAN BASIS)

Texas, 12 months	$0.61 –$0.63
California, Northern	.51 – .53

PULLED—EASTERN (CLEAN BASIS)

A-A.....	$0.68 –$0.70	B-Super...	$0.47 –$0.52
A-Super....	.55 – .58	C-Super...	.41 – .43

MONTANA, IDAHO AND WYOMING (CLEAN BASIS)

Staple fine	$0.65 –$0.68
Staple ½ bld	.60 – .62
Fine and fine medium	.58 – .60
¾ blood	.48 – .52
½ blood	.42 – .45

MOHAIR—DOMESTIC

Best carding	$0.25 –$0.28
Best combing	.41 – .43

MOHAIR FOREIGN (IN BOND)

Turkey fair, average	$0.12 –$0.15
Cape firsts	.12 – .15

FOREIGN CLOTHING AND COMBING (CLEAN BASIS IN BOND)

Australia:	
70s	$0.52 –$0.55
64s	.43 – .45
58s-60s	.38 – .42
(IN GREASE)	
Montevideo:	
58s-60s	$0.19 –$0.20
56s	.18 – .19
50s	.18 – .19
Buenos Aires:	
4s, 40-44s	$0.14 –$0.15
5s, 36-40s	.13 – .14

FOREIGN CARPET (GREASE BASIS IN BOND)

Aleppo	$0.22 –$0.24
China: Combing No. 1	.14 – .15
China Filling Fleece	.12 – .14
Szechuen ass't	.12 – .14
Cordova	.14 – .15
Scotch black face	.15 – .17
East India: Kandahar	.20 – .22
Vican'r	.24 – .26
Joria	.23 – .24

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 36s	$0.75 –0.80
2-24s 40s	.85 – .87½
2-26s 44s	.87½– .90
2-28s 46s	– .95
2-30s 48s	.97½–1.00
2-32s 50s	1.02½–1.05

(Single yarns 5c. less than above)

2-36s, 58s	$1.20 –1.25
2-40s, 60s	1.32½–1.35
2-40s, 64s	1.37½–1.40
2-50s, 66s	1.55 –1.60
2-60s, 70s	1.80 –1.85

ENGLISH SYSTEM KNITTING

2-20s, 44s in oil	$0.77½–0.80
2-20s, 48s in oil	– .82½
2-20s, 50s in oil	.85 – .87½
2-20s, 56s in oil	.97½–1.00
2-20s, 60s in oil	1.15 –1.17½
2-20s, 64s in oil	1.25 –1.27½
1-18s, 46s dyed	– .97½
1-18s, 48s dyed	–1.00
1-18s, 50s dyed	–1.02½

(Oil yarns 17½c. less)

FRENCH SYSTEM

1-20s, 58s	$1.10 –1.12½
1-20s, 60s	1.15 –1.17½
1-18s, 64s, dyed	1.40 –1.42½
1-26s, 64s	1.20 –1.22½
1-30s, 60s, Warp	1.22½–1.25
1-30s, 64s, Warp	1.25 –1.27½
2-30s, 64s, Fancy mixes	1.50 –1.52½
2-40s, 64s, Zephyrs	–1.40
1-50s, 66s	1.52½–1.55
1-50s, 66s	1.62½–1.65
1-60s, 70s	1.85 –1.90
1-60s, 70s	1.90 –1.95

FRENCH SPUN MERINO WHITE

1-30s, 50-50-58s on cops	$1.00 –1.02½
1-40s, 50-50-60s on cops	1.15 –1.17½
1-40s, 50-50-64s on cops	1.17½–1.20
1-40s, 50-50-64s Australian cops	1.20 –1.25

Underwear mixes, 3c. additional.
Solid color, 35c. additional.

◆

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$0.83–$0.88
Half-blood (60-62s)	.80– .82
High ¾ blood (58s)	.65– .68
Aver. ¾ blood (56s)	.63– .65
Low ¾ blood	.60– .62
High ¼ blood (50s)	.55– .58
46s S. A. and N. Z.	.51– .53
44s S. A. and N. Z.	.50– .52
40s S. A. and N. Z.	.48– .50

TOPS—BRADFORD, ENG. (MAR. 27)

Fine (70s)	29 d	¾ bld. (56s)	18½d
Fine (64s)	26½d	½ bld. (50s)	16 d
½ bld. (60s)	24½d	Cross-bred (46s)	13 d
¾ bld. (58s)	21 d		

NOILS—BOSTON

Fine	$0.45–$0.48	High ¼ bld.	$0.33–$0.35
Half-bld.	.40– .42	Low noils	.31– .33
Aver. ¾ bld.	.35– .38	Medium colored	.25– .30
Fine colored.	.33– .38		

Wool Substitutes

WOOL WASTE

Lap, fine white	$0.65 –$0.68
Lap, fine colored	.48 – .52
Hard ends, fine white	.51 – .53
Hard ends, ¼ blood white	.35 – .38
Hard ends, fine colored	.25 – .27
Hard ends, medium colored	.18 – .20
Card, fine white	.25 – .28
Burr, fine Carbonizing	.30 – .33

OLD WOOLEN RAGS (GRADED FOR MFRS.)

Merinos, Coarse Light	$0.04½–$0.05
Merinos, Fine Dark	.04 – .04½
Merinos, Fine Light	.11 – .11½
Serges, Blue	.06 – .06½
Serges, Black	.06 – .07
Serges, Red	.08 – .09
Knit, White	.24½– .25
Knit, red	.11 – .12
Knit, Light Hoods	.12 – .13
Worsted, Light	.05½– .06
Worsted, Blue	.06½– .07
Worsted, Black	.06½– .07

Silk Yarns

THROWN SILK (60 day basis)

	Nominal
Japan organzine, 2 thd. spec. gd. XX. sk. 85%.	$4.10
Japan organzine, 2 thd. sp. crack. sk. 81%.....	3.70
Japan crepe, 3 thd. gd. XX bob. 83%.....	3.85
Japan crepe, 3 thd. sp. crack. bob. 81%.....	3.75
Japan crepe, 4 thd. crack bobbins, 78%.....	3.65
Japan grenadine, 4 thd. sp. grand singles, 87%	5.70
Japan grenadine 4 thd. 85%.....	5.40
Japan grenadine 3 thd. 90%.....	6.70
Canton crepe, 3 and 4 thd. ns. 14/16 on bobbins	2.45
Hosiery tram, 3 thd. Japan 90%.....	4.75
Hosiery tram, 5 thd. Japan, 85%.....	3.80
Hosiery tram, crack XX 78%.....	3.15

SPUN SILK YARNS (Terms: net 30)

40/2.....	$3.15	60/2.....	$3.35
50/2.....	3.25	62/1.....	2.35

Raw Silk

(60 Day Basis)

	13/15 White	20/22 White	20/22 Yellow
Super Grand, 86/88%...	$3.50	$2.75	$2.70
Special Grand, 85%.....	2.95	2.65	2.65
Grand XX, 83%.....	2.85	2.60	2.60
Special Crack, 81%.....	2.70	2.55	2.55
Crack XX, 78%.....	2.55	2.50	2.50
Extra Extra, 73%.....	2.45	....	....
Best Extra, 68%.....	2.40	....	....

Canton filature, new style, 14/16	$1.60
Canton filature, new style, 20/22	1.55
Tussah filature, 8 cocoon	1.15

NATIONAL RAW SILK EXCHANGE

	Close Mar. 25	For the Week High	For the Week Low	Close Mar. 31	Net Chge.
March.....	2.47	2.49	2.45	....	.....
April.....	2.44	2.47	2.40	2.46	+.02
May.....	2.38	2.41	2.34	2.38	.....
June.....	2.37	2.40	2.32	2.37	.....
July.....	2.38	2.38	2.34	2.37	—.01
August.....	2.36	2.38	2.33	2.37	+.01
September..	2.36	2.38	2.33	2.37	+.01
October.....	2.36	2.38	2.33	2.37	+.01
November..	....	2.37	2.33	2.37	.....

Total contracts, 678. Total number of bales, 6,780. Total approximate value, $17,289. Trading unit crack XX 78% white 13/15.

Domestic Rayon

VISCOSE PROCESS

Denier	Filament	First	Second
50	14	$2.15	$1.95
75	18–30	1.35	1.25
100	18–40	1.10	1.00
125	36–50	1.00	.90
150	30	.70	.67
150	40	.75	.72
150	60	.85	.82
150	75–90	.85	.82
170	24–27	.75	.72
170	60	.85	.82
200	30	.75	.72
200	35–42	75	.72
300	42–62	.63	.60
450	54–60	.63	.60
600	72–96	.63	.60
900	100–144	.63	.60

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Second Qual.	Denier	First Qual.	Second Qual.
75	$1.35	$1.25	150	$0.75	$0 72
100	1.05	.95	175	.75	.72
125	.95	.85			

CUPRAMMONIUM PROCESS

Denier	Filament	Price	Denier	Filament	Price
15	24	$3.10	65	45	$2.00
25	24	2.85	80	60	1.70
30	24	2.60	100	75	1.35
40	30	2.40	120	90	1.22
52	30	2.20	150	112	1.10
			180	135	.97

ACETATE PROCESS

Denier	Price	Denier	Price
45	$2.25 2.75	120	$1.90
55	2.05–2.55	140	1.30
65	2.45	150	1.40–1.85
75	1.80–2.70	200	1.55
100	1.65–2.45	300	1.50

Rayon Waste

Open bleached waste	$0.13½–$0.14½
Open unbleached waste	.11
Bleached thread waste (mfs.)	.19
Bleached thread waste (misc.)	.07– .08
Colored thread waste	.05
Colored clips	.05

CONVERTED RAYON WASTE

Bleached tops	$0.33–0.35
Unbleached tops	.30
Bleached noils	.12
Bleached garnetts	.13
Unbleached garnetts	.14
Colored garnetts	.12

Silk Waste

Kibizzo Kakai Grand XX	$0.54
Kibizzo Kakai Triple Extra	.48
Frison Grand Double	.52½
Pierced Cocoons	.53

Wherever accurate weighing is important

From receiving platform to shipping room Fairbanks Dial Scales can be used profitably. These modern scales speed up production because they give accurate weight quickly. There are no weights or poises to juggle. Weight is read easily with a glance at the big, clearly marked dials. Pointers come to rest without wavering. Errors are reduced to a minimum.

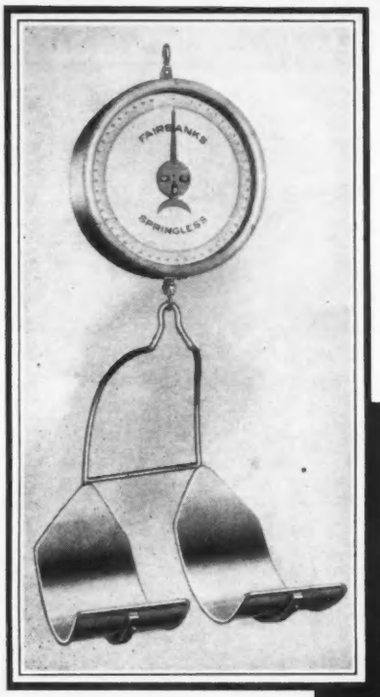
The lasting dependability of Fairbanks Scales is traditional. For more than a century the Fairbanks name has been synonymous with "accurate weight." Your investment in weighing equipment is *protected* when your scales are Fairbanks built.

In the broad Fairbanks line you will find scales that will fit your many requirements exactly. Let us explain how you can protect profits and speed up production by using Fairbanks Dial Scales. There's no obligation.

FAIRBANKS, MORSE & CO.
900 S. Wabash Ave., Chicago
And 40 principal cities—a service station at each house

Fairbanks Scales

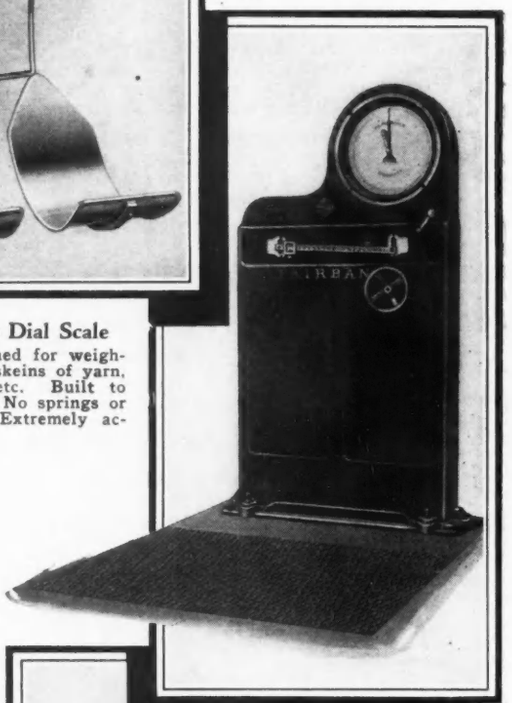
Preferred the *World Over*



Fairbanks Lap Dial Scale
Especially designed for weighing cotton laps, skeins of yarn, rolls of cloth, etc. Built to stand hard use. No springs or delicate parts. Extremely accurate.

All Metal, Suspended Platform Dial Scale with Full-Capacity Direct-Reading Dial

Easily installed. Platform rests flush with floor. Suspended platform absorbs all platform motion. Equipped with tare beam so that net weight can be read directly from dial.



Fairbanks Portable Dial Scale
Used where extreme accuracy is required in weighing loads up to 200 pounds. Gives accurate weight to small fraction of pound. Dials graduated to ¼, ⅛ and 1/10 of a pound. Readings can be made as fast as loads can be handled. Built to withstand hard use. SA 70.4

Night Work Policy Already Made Effective By 92% of Subscribers

REPORTS received from cotton mills throughout the industry and from the Cotton-Textile Institute's field representatives indicate that 92% of the mills which subscribed to the recommendation that night employment of women and minors be discontinued have already put this policy into effect. Reports not yet received will probably show a substantial increase in this percentage.

In making this announcement Friday, George A. Sloan, president of the Cotton-Textile Institute, stated:

"The tendency of mills observing this recommendation to go a step further and discontinue all night work is accelerated by the recent announcement of the Borden Mills, Kingsport, Tenn., a large manufacturer of print cloth, to the effect that beginning this week it will operate on a day shift basis. Heretofore this mill has run regularly on a day and night schedule for several years. Numerous other mills, particularly those making print cloths, narrow sheetings and sales yarn, have from time to time during the last several months announced that they were discontinuing the night shift.

"The more recent spindle hour activity reports of the Government Census Bureau, while not showing separately the amount of night operation, confirm this new tendency in the industry to concentrate operations and stabilize employment on the day shift. These figures for the last available month show 66 hours as the average running time per week for spindles in actual operation in cotton growing states. In New England the average running time per active spindle was less than 50 hours for the same period."

Largely as a result of these constructive developments, The Cotton-Textile Institute has added 269,080 spindles to its membership since March 1.

Spokesmen for C.T.I. Tell Of Its Work and Aims

Walker D. Hines, chairman of the board, The Cotton-Textile Institute addressed the annual luncheon of the Consumers' League of New York, on March 26. He told of the night work reform upon which the industry has entered and traced the evolution of the movement. He also spoke briefly in rebuttal of the charges that the movement was a blow at the independence and opportunities of women. "The industry has taken a forward step of vital importance," he said, "and will keep going in the right direction."

George A. Sloan, president of The Cotton-Textile Institute addressed the board of managers of the New York Cotton Exchange following the close of trading on March 25. He explained the aims of the Institute to the cotton men and outlined the acheivements of the Institute, stressing fact finding as to production and sales, the anti-night-work campaign, cost work, advertising and education work and "new uses" developments.

"We have endeavored," he said, "to promote (1) a better balancing of production with demand on the part of the mills individually, (2) the observance of sound and adequate cost principles, and (3) greater consumption of cotton through new and extended markets."

Wrigley Cotton Plan Helpful Factor

A plan to buy 100,000,000 lb. of cotton at prices not to exceed 12c. a pound, was announced this week by William Wrigley, Jr., chewing gum magnate of Chicago. It is similar in principle to action taken by the same interests 18 years ago when cotton was selling at 5c. per pound.

"What we are doing now," Mr. Wrigley explained, "is to leave all our southern money in the South's own coin—cotton." "We believe that cotton at less than 12c. a pound is a good buy for holding and are therefore willing to take up to 100,000,000 lb. on that basis."

Trade was interested in the plan but it is pointed out its effect cannot be sudden nor of major character in view of the fact it involves only 200,000 bales. It is, however, a constructive market influence.

Program for New England Industry

A working program for New England industry in 1931 consisting of 14 recommendations made by 739 leading New England business executives has been issued by the Industrial Committee of the New England Council.

The first recommendation (made by 534 executives) is to "hold lay-offs to a minimum" by eliminating overtime and then if necessary by reducing weekly hours.

Aggressive merchandising is urged by 501, and constitutes the second recommendation. "Improve employe morale" 448 executives declared in their ballots.

Change In Yarn Firm

Longcope & Crawford, Philadelphia, worsted yarns, announce the retirement of Mr. Longcope from the firm on March 24. Donald Crawford will continue as previously, with offices at 400 Chestnut Street, Philadelphia, and 45 E. Seventeenth St., New York; representing the Germania Mills, Holyoke, Mass.; J. M. & E. M. Abbot, Ltd., Lowell, Mass.; and Jos. M. Adams Co., Philadelphia, trading as Donald Crawford Co.

Dayton Again Heads Silk-Rayon Credit Men

At the recent annual meeting of the Silk and Rayon Credit Association, held in New York, Forrest S. Dayton, of John Dunlop's Sons, Inc., was re-elected president, together with John J. Burke, of Tubize Chatillon Corp., vice-president, and Aleck A. Smith, secretary and treasurer. Members of the board of governors were elected as follows: T. J. Mangan, of E. Gerli & Co., Inc.; A. A. Hermann, of Salembier & Villate, Inc.; Nathan Lewis, of Kahn & Feldman, Inc.; S. S. Reinhard, of Berizzi Bros. Co.; T. A. Caulfield of The Viscose Co.; and Weber de Vore, of United Piece Dye Works.

American Woolen Shows Fancies for Fall

American Woolen Co. opened men's fancy suitings for fall March 26. Prices quoted buyers showed average concessions of 7 to 20c. a yard in Department 1 and 20 to 22c. in Department 2. Prices quoted varied from 13 to 48c. lower than last season in several of the lines. Comment to the effect prices of fabrics opened by Department 2 were low even in to-day's market was heard on Fourth Avenue. General opinion was that the new lines were well styled. Mixtures were priced about on the basis named by other large operators. Among the new quotations received by buyers were: 5004, now $2.63 as compared with $2.86 last season; 4001, standard, $1.80 comparing with $2.08 last season; Q5230 standard, 13 oz. now $1.88 as compared with $2.13.

Boston Wool Receipts

Receipts of domestic and foreign wools at Boston, also imports at Philadelphia and New York for the week ended Mar. 28, based upon data compiled by the Market News Service of the Bureau of Agricultural Economics, Department of Agriculture, follow:

	Week Ended Mar. 28	Total to Date 1931	Total to Date 1930
Domestic	824,000	17,490,000	17,210,000
Foreign	1,921,000	13,602,000	22,053,000
Total	2,745,000	31,092,000	39,263,000
IMPORTS AT PRINCIPAL PORTS			
Boston	1,921,000	13,602,000	22,053,000
Philadelphia	461,000	9,214,000	20,842,000
New York	793,000	13,458,000	16,605,000
Total	3,175,000	36,274,000	59,500,000

British Rayon Production Less

British rayon production in the first two months of 1931 was 7,450,000 lb., against 8,940,000 lb. for similar months in 1930. Output last year exceeded sales by over 1,000,000 lb., whereas reduction of stocks is revealed this year.

Landman to Sell Woolen Yarns

G. F. Landman & Son, Philadelphia, worsted yarns, has announced that in addition to the other yarns sold by it the firm will act as selling agents for woolen yarns spun by Geb & Garvan Yarn Co., Inc., Seneca Falls, N. Y.

Waste Association Elects Officers

Carlton B. Overton was reelected head of the National Association of Waste Material Dealers, Inc., at the annual convention of this group, March 16, 17 and 18 at Chicago.

Selling Part of Mill Product at Loss Is Dangerous Practice, Says S. P. Munroe

THE fallacy of the more or less general practice of selling certain of a mill's products at a loss, in order to absorb part of the overhead and thus insure profits on the remainder, is pointed out in the following letter to cotton mill executives from Sydney P. Munroe, manager of the Cost Section of The Cotton-Textile Institute:

"The Institute has repeatedly pointed out to the industry the deplorable extent to which market conditions may be undermined by neglect of cost information by individual mills when quoting prices or considering offers. In emphasizing the importance of using and having available sound cost data at such times it has been explained that incorrect cost methods always underestimate costs on some if not all lines of product. If any yarns or styles are over-figured the mill is not likely to be in a competitive position on such items. On the contrary, however, the items which are under-figured will be more readily sold and the tendency will be for more and more of the mill's equipment to be engaged in manufacturing yarns or goods which are under-quoted.

"There is another dangerous practice which is pursued by some mills regardless of the soundness of their cost figures. This practice consists of deliberately operating some portion of the mill's equipment on orders which are sold at a loss, the theory of the management being that if it is able to operate a part of its equipment on certain items which show a profit, that profit will be further assured if the balance of the equipment is operated on orders sold at a loss because the latter orders will serve to absorb part of the overhead on machinery which might otherwise be idle.

"For example, a yarn mill producing, let us say, a range of yarns from 10s to 40s may be able to occupy a large part of its mill selling 30s and 40s yarn at a profit, because perhaps its equipment may be such that it is best adapted to the production of such yarns. In order to carry at least a part of the overhead on the remainder of its mill it may accept orders on 10s and 20s which it knows will show a loss.

"At first glance it may appear that this is a shrewd business move, and this might be true momentarily if the mill in question were the only one which could and did play this particular game. But all others can play the same game and, under force of example, many are likely to do so. Accordingly, the procedure should be viewed from the standpoint of its eventual results both to the mill itself and to the entire industry rather than from a very doubtful aspect of temporary individual expediency.

"What is the situation if his example leads to the adoption of a similar policy by the mill's competitors generally? Some of these competitors will have mills which are best adapted for the manufacture of 10s and 20s and may decide to sell 30s and 40s at losing prices in order to absorb overhead and to enable them to operate machinery which would otherwise be idle, and the quotations of such competitors will in the end ruin the profit originally obtainable on these yarns. It is not difficult to see that a general pursuit of this unsound policy would result in ruinous prices on all yarns, regardless of the statistical position in respect to production, stocks, demand, etc., and regardless of the adequacy of the cost finding methods in use. After all, it would seem self-evident that a business could hardly hope to profit in the long run by selling goods at a loss.

"The practice referred to has not been uncommon and it is a striking example of the misuse of valuable facilities. It has been employed by managements who are adequately informed as to their costs and who feel that in adopting such a procedure they are taking full advantage of their cost figures. As long as the yarn manufacturer in question is willing to pursue such a policy he may be sure that his production on the 10s or 20s will never be sold at a profit. In order partially to assure a profit on a portion of his output *he has closed the door to any possibility of securing a profit on his entire output until he abandons this policy.*"

Soviet Cotton Selling in Liverpool About ½c. Under Equivalent American

SOVIET production of cotton is already beginning to threaten East Indian and Peruvian in London markets, according to a European representative of *The Business Week*. Further intensification may be expected adversely to influence American cotton sales in Europe particularly since Russia doubtless will continue price cutting due to urgent needs for foreign credits. Certain Liverpool agents are said to have entered into an agreement with Arcos to handle Russian cotton pending formation of Anglo-Russian cotton company along same lines as one recently formed to handle Russian doors. At present the Soviet cotton is selling about ½c. per lb. cheaper than American. Lancashire recently paid for Russian cotton 12.78 to 13.18c. compared with 13.25 to 13.65c. for similar American.

Irrigated land under cotton in Russia, according to official Moscow, will be increased from 2,700,000 acres in 1930 to 4,400,000 in 1931, plus 1,200,000 acres unirrigated. Production has risen from 41,000 bales (500 lb. each) in 1921 to 1,900,000 in 1930, when it was equivalent to 12% of United States and 6.7% of world production.

Increased 1931 area indicates 3,500,000 bale crop. Intensification on cotton, especially bringing in unirrigated land, expands Russian market for tractors and agricultural implements. The facts here given reflect the situation in terms very similar to those contained in the article on "Relation of Soviet Russia to the World Cotton Market," published on pages 48 and 49 of TEXTILE WORLD for March 7, 1931.

Wool Blanket Group Meets

George Sloan, president, The Cotton-Textile Institute was guest speaker at the quarterly meeting of the Wool Blanket Manufacturers, March 27, at the Hotel Pennsylvania, New York. He outlined the work of the institute. A regular business session was held in the morning when production figures and stock statistics were reviewed. June 12 was selected for the next meeting.

P. D. Howe Goes From Merrimack to Universal

Parkman D. Howe, who has been associated with Merrimack Mfg. Co. for the last five years, has become assistant treasurer of the Universal Winding Co. Following graduation from Harvard in 1911, Mr. Howe became connected with Lockwood, Greene & Co., in the mill management department. In 1915 he became assistant treasurer of Saco Lowell Shops, and later treasurer. In 1925 he became representative of Merrimack Mfg. Co., in Lawrence & Co. and later held the same position with Minot, Hooper & Co. from which he has just resigned to go with Universal Winding Co.

Ask Philadelphia Mayor to Halt Strike Violence

A week of violence, incident to the full-fashioned hosiery strike in the Philadelphia district, resulted Tuesday in an appeal by the Northeast Chamber of Commerce, for action by Mayor Mackey. Charles C. Davis, president of the civic organization, urged that the mayor assume functions of a magistrate in strike cases to demonstrate "to the lawless element that Philadelphia will be free from disturbances of this kind."

Sec. Mellon Awarded Chemists' Medal

On March 24, the 76th birthday of Andrew W. Mellon, Secretary of the Treasury, the American Institute of Chemists announced the award of its medal jointly to Andrew W. Mellon and

Richard B. Mellon for distinguished service to the science and profession of chemistry. In making the award it was said, "Andrew W. Mellon and Richard B. Mellon have contributed to the advancement of chemistry in its broadest aspects and have fostered the progress of industry by their far-seeing and unselfish efforts. Through the agency of the Mellon Institute of Industrial Research they have been leaders in the great forward march of the American chemical industry."

Army Buying Wool Goods

Depot Quartermaster, U. S. Army, Philadelphia, opened bids March 23 to furnish the Army with 200,000 yd., 18 oz., serge, 56 to 58 in., wide, olive drab and 135,000 yd., 24 oz., 56 to 58 in., olive drab elastique.

Contracts to supply these two items have been placed with Botany Worsted Mills, Passaic, N. J., whose bid on serge was $1.992 per yd., and $2.591 on the elastique.

Rayon Surplus Now 18,000,000, Is Estimate

Conditions in the textile industry in general are favorable and the prospects are for continued activity during the spring months with a relapse during the summer months, according to *The Textile Organon*, published by the Tubize Chatillon Corp. The review says in part: "The first three months of 1931 was a period of increasing activity with little or no profit. Low rayon prices since Jan. 9 have tended to stabilize the market and average daily poundage sales of rayon have increased more than seasonally from January through February and March. Production schedules have not been increased appreciably and rayon stocks in hands of manufacturers have been consistently reduced; we estimate them to amount to around 18,000,000 at the end of March."

National Wash Dress Week Plans

Plans for National Wash Dress Week which will be held over the entire country April 20 to 25 have been completed by the International Association of Garment Manufacturers. Cotton style news together with news of the week will be broadcast by radio stations throughout the country. Pathe News is photographing a special cotton fashion show for National Dress Week, which will be shown that week. Complete information concerning it is being sent to fashion editors in every State and it is assuming the proportions of a national cotton festival.

Evening Class at Lowell to Graduate April 7.

The largest evening class in the history of the Lowell Textile Institute will be graduated on April 7 when at least 125 students will receive diplomas and certificates. Ignatius MacNulty, safety engineer of the American Woolen Co. will speak.

Employment Problems in Forefront at New England Council Meeting

STABILIZATION of employment was the problem most discussed at the 22nd quarterly meeting of the New England Council, held in Providence, R. I., March 20 and 21. In his opening address President Henry C. Knight stated that business must give increasing and effective attention to employment stabilization. In commenting on the study being made of transportation he declared that New England had an excellent opportunity to develop a "sound and economic transportation policy which we can make effective.

James W. Hook, chairman of the Council's industrial committee, issued a warning that industry as a whole and individual employers must apply "the same vigorous and intelligent" action toward stabilization of employment as they apply to production and sales problems. Industry must do its part, Mr. Hook said, if uneconomic political action was to be avoided and he urged industry to secure data and information at this time which could be used as a factual basis.

Speaking from the community standpoint, John F. Tinsley, chairman of the Council's community development committee, and vice-president of Crompton & Knowles Loom Works, declared "the outstanding handicap to the execution of effective measures for the stabilization of employment has been lack of accurate knowledge of the degree, type and trend of employment." Mr. Tinsley recommended that every industrial community establish an index of employment of purchasing power, based on payroll, and an index of number of totally unemployed.

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Resigns Hosiery Association Post; Joints Berkshire

John Nash McCullaugh, managing director of the National Association of Hosiery and Underwear Manufacturers for 9½ years, is resigning the post as of May 1, according to announcement late Thursday by John Wyckoff Mettler, president of that association. Mr. McCullaugh has been appointed general manager of Berkshire Knitting Mills, Reading, Pa., where he will direct the manufacture and sale of the largest output of full fashioned hosiery in the country, taking over many of the duties of Gustav Oberlaender, vice-president and secretary of Berkshire.

Textile Section of A.S.M.E. to Meet in Birmingham

The Textile Division of the A.S.M.E. will hold a session during the semi-annual meeting of the A.S.M.E. at Birmingham, Ala., April 20 to 23. Two papers will be presented at this session, one, by C. L. Emerson, on "Trends in the Cotton Industry," and the other, by Norman E. Elsas, on "Control of Picker Room Humidity." All textile men, whether or not members of the society, are invited to be present at the meeting and to take part in the discussion of the papers, advance copies of which may be secured from Paul A. Merriam, 389 Charles St., Providence, R. I.

Action of Sunlight on Cotton Discussed at A.C.S. Meeting

Results of tests to determine the action of sunlight and oxygen on the strength of cotton fabrics were discussed at the Indianapolis meeting of the American chemical society, March 20 to April 5, 1931. In a paper presented by E. W. Brugmann, L. B. Turner, and J. B. Phillips, before the division of cellulose chemistry, it was stated that purified cotton cloth in the form of sheeting (99.5% alpha cellulose) was exposed under glass filters to sunlight for two months in dry and moist oxygen and nitrogen. Changes in tensile strength, copper number, soda, solubility, and cuprammonium viscosity were determined. Slight deterioration (10% loss in tensile strength) occurred in samples exposed in nitrogen and marked deterioration (40% loss in tensile strength) occurred in samples exposed in oxygen. Moisture and the short wave lengths of sunlight increased the deterioration.

Cotton sheeting was also exposed in the dark to dry oxygen and nitrogen at 60° C. for two months and the above properties measured. Only slight deterioration occurred in both cases and it was probably due to the heat alone.

It is concluded that light is the primary factor in deterioration of cellulose by sunlight and air, and that oxygen acting in the presence of light greatly accelerates the deterioration.

Wool Institute Engages Trade Association Expert as General Counsel

THE Wool Institute has engaged Gilbert H. Montague as general counsel effective April 1. The move suggests further effectiveness for its present constructive program.

Mr. Montague has been counsel in numerous Federal and State anti-trust and Federal Trade Commission investigations and proceedings relating to oil, steel, lumber, rubber, machinery, paper, cordage, publishing, explosives, advertising chain stores, cutlery, clothing, coal, meat packing, chemicals, textiles, metals, watches, food products, pharmaceuticals, toilet articles, musical instruments, motion pictures, cement, dyestuffs, and other industries.

Among Mr. Montague's other clients are Lehigh Valley Coal Corp., Otis Elevator Co., General Foods Corp., American Radiator Co., Standard Sanitary Mfg. Co., Cudahy Packing Co., Cheney Bros., Vick Chemical Co., Norwich Pharmacal Co., Oneida Community, A. G. Spalding & Bros., Chain Institute, Cordage Institute, Jute Twine Institute, and Export Petroleum Association.

In an address recently delivered, Mr. Montague expressed his opinion on trade association activities in part as follows:

"There are two activities of trade associations and institutes now sanctioned by Supreme Court decisions as construed and accepted by the Department of Justice and the Federal Trade Commission, both of which activities can be of inestimable service in hastening a wholly sound and lawful economic stabilization in any industry.

"First is the collection by trade associations and institutes of trade data regarding past transactions, and the dissemination of such data in summary form to their members so that they may at all times have up-to-date statistics regarding volume of production, volume of orders, volume of sales, volume of current stocks in the hands of the members and their trade, and prices in past transactions.

"Second is the adoption by trade associations and institutes—or by industry action in trade conferences held by Federal Trade Commission—of codes of ethics that are in harmony with Supreme Court decisions as construed by the Department of Justice and the Federal Trade Commission, with which should be set up investigating bureaus to whom is pledged full and complete access to the members' books and records, so that every complaint of alleged violation of these codes can be promptly and vigorously investigated with the single purpose of denouncing to these trade associations and institutes—or in aggravated cases to the Department of Justice and the Federal Trade Commission—every case that is found to be in violation of Supreme Court decisions as construed by the Department of Justice and the Federal Trade Commission.

"Between them, these two institute and trade association activities can keep every individual member informed as to whether it is *actual* competition or *phantom* competition (purchasing agents' falsehoods or salesmen's misinformation) that it is competing against, and can supply two effective antidotes against the panic impulse in times of falling prices.

"The first activity keeps at all times before each individual member the essential statistical data that it requires in order to form its own individual judgment as to general trends in the entire industry.

"The second activity keeps at all times at the disposal of each member a fearlessly conducted investigating bureau, operated by competent investigators unconnected with any member of the industry, which by applying simply the Supreme Court rule against price discriminations can promptly, impartially and effectively clean up many of the most diseased competitive situations that now exist in practically every industry.

"These two steps every trade association and institute can today take toward sound, lawful, economic price stabilization."

S. C. Mill Men Ask Night Work Legislation

(Continued from page 37)

North Carolina, Georgia and Alabama will follow suit. The house committee on manufactures and industry of the North Carolina General Assembly, now in session at Raleigh, has reported favorably on a bill providing for a maximum work-week of 55 hours in industry. Several influential manufacturers in that state have been active in behalf of legislation to carry the restriction a step further and prohibit the employment of women and minors under 18 years of age at night. Last week it was announced that a partial step had been taken toward this end when a bill prohibiting women under 18 years of age from working at night had been passed by the N. C. Senate and would become effective June 1. The recent declaration of their fellow manufacturers in South Carolina may have the effect of stimulating renewed efforts for such legislation by executives in North Carolina. It is known that some leading manufacturers are anxious to press the issue for national legislation as a protection against competition from any cotton manufacturing State that might not fall in line with State restrictions.

Viscose Revokes Licenses of Six Firms

Six manufacturers, operating under The Viscose Co.'s "quality control plan" have had their licenses revoked for producing merchandise not up to standard, it is announced. Through the check-up system worked out by the Better Fabrics Testing Bureau, careful supervision of all rayon merchandise is maintained. And, since every label bears the manufacturers' code mark, it was a simple matter to trace the inferior garments to their source and deal directly with the offenders. Skimping sizes was the charge brought against the six manufacturers who abused their privileges.

"We intend to maintain at all costs the high standard we have adopted for the development of quality rayon within the industry," said John A. Spooner, merchandising director of The Viscose Co. "We feel that the whole plan is more important than any one manufacturer and that such a step protects the great majority of manufacturers who are genuinely interested in raising and maintaining a high standard of rayon production."

Revocation of the license means that these firms no longer have the right to the Viscose brand "Crown" label.

Textile Calendar

The Cotton Manufacturers Association of Georgia, Annual Meeting, Atlanta-Biltmore Hotel, Atlanta, Ga., April 7 and 8, 1931.

Southern Textile Association, Carders' Division, John C. Calhoun Hotel, Anderson, S. C., April 10, 1931.

Knitting Arts Exhibition, Commercial Museum, Philadelphia, April 13 to 17, 1931.

National Knitted Outerwear Association, Benjamin Franklin Hotel, Philadelphia. Directors' meeting, April 13; annual convention April 14, 1931.

North Carolina State College, Textile School, Style Show and Textile Exposition, State College Station, N. C., April 16, 1931.

National Association of Hosiery and Underwear Manufacturers, annual meeting, Commercial Museum, Philadelphia, April 16, 1931.

Southern Textile Association, Eastern Carolina Division, N. C. State College, Raleigh, N. C. April 17, 1931.

Textile Division, American Society of Mechanical Engineering, Birmingham, Ala., April 20 to 23, 1931.

American Cotton Manufacturers Association, Thirty-fifth Annual Convention, Bon Air-Vanderbilt Hotel, Augusta, Ga., April 23 to 25, 1931.

Exposition of Chemical Industries, Grand Central Palace, New York, May 4 to 9, 1931.

Southern Textile Association, Master Mechanics' Division, Parker District High School, Greenville, S. C., May 8, 1931.

Phi Psi Textile Fraternity, 29th Annual Convention, Bradford Arms Hotel, Sagamore, Mass., May 8-10, 1931.

American Society of Mechanical Engineering (including Textile Section), general meeting. Hartford, Conn., June 1 to 3, 1931.

Philadelphia Textile School, Alumni Business Meeting, Philadelphia, June 4; Annual "Cruise" and Banquet, June 5, 1931.

Southern Textile Association, Annual Meeting, (Place to be announced later) June 12-13, 1931.

The Cotton Manufacturers Association of North Carolina, Twenty-fifth Annual Convention, Sedgefield Inn, Greensboro, N. C., June 19-20, 1931.

American Society for Testing Materials, Annual Meeting, Hotel Stevens, Chicago, June 22 to 26, 1931.

Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 17 to 22, 1932.

New Printing Gums Described at A.A.T.C.C. Meeting

Recent developments in the production of printing thickeners were described by Thomas R. Harris, of Herrick & Voigt Co., at the March meeting of the American Association of Textile Chemists and Colorists. Improvements made in gum for use in printing silk and rayon include greater body, and increased transparency and fluidity. After outlining the advantages attending the use of these more highly refined products, Mr. Harris spoke of the advances made in the manufacture of thickeners for vat printing and various types of screen printing. In conclusion he set forth the need for further study of gums, starches, and other thickeners, and urged greater cooperation between printers and manufacturers of these products.

Over 50 members and guests of the society attended the meeting, which was held on Friday evening, March 27, in the Hotel Alexander Hamilton, Paterson, N. J. Robt. H. Gaede, chairman of the local section, presided.

Strike at Mount Hope Mills

More than 100 employees of the Mount Hope Mills, Warren, R. I., went out on strike last week because of a disagreement over a 54-hour week put into effect by mill officials. A reduced force of employees is keeping a portion of the mill running. On Monday, March 16, the mill posted notice that production, which has been stopped the previous Friday, would be resumed on basis of a 54-hour week, and that a 5% wage cut, which went into effect last fall on the 48-hour week schedule, would be abolished.

On Wednesray the local union of the United Textile Workers of America voted to strike. William C. Johnson, treasurer of the mill, declared that since on a 48-hour week the mill must operate at a loss, no other offer than 54-hour week can be extended the employees.

Program of A.S.M.E. Meeting Nears Completion

The program of the A.S.M.E. meeting to be held at Hartford, Conn., on June 1, 2, and 3, is being rapidly completed and a list of industrial plants which will be opened for visits by members of the society is being prepared. The technical program has been arranged in tentative form and includes sessions on machine-shop practice, power, management, materials handling, and textiles.

Spread of the "Wear Cotton" Movement

Among the most elaborate events of the rapidly broadening "Wear Cotton" movement now attracting widespread interest in the South is the Southeastern Cotton Festival, which will be held in Anderson, S. C., April 9 and 10. The program will include parades with floats representing various stages in the progress of the cotton textile industry, a pageant and style shows. Five States will participate in the festival and send "cotton queens." Numerous textile plants have accepted invitations to exhibit their products.

Following the recent style shows at Wadesboro and Mount Holly, N. C., featuring the advantages of cotton goods, another interesting fashion show was held in Lumberton, N. C., April 3. Plans are being formulated for similar events in Charlotte, N. C., and other southern towns.

Business News

Rodney Hunt Machine Co. Distributes Fulling-Mill Data Sheets

Rodney Hunt Machine Co., Orange, Mass., has prepared a blank form suitable for fulling-mill data, which it is distributing in pads of 25 sheets each.

Chemical Companies Move to Chrysler Building

Westwaco Chlorine Products, Inc., and the Warner Chemical Co. have moved their executive offices to the Chrysler Building, 405 Lexington Ave., New York City.

F. H. Learned with Tyer Rubber Co.

Frederick H. Learned, who was with the Stowe & Woodward Co., has been put in charge of the rubber roll sales for the Tyer Rubber Co. of Andover, Mass. This company has made rubber covered rolls for about 10 years.

U S Bobbin & Shuttle Co. Opens Charlotte Office

The U S Bobbin & Shuttle Co. has opened its southern sales office at 914 First National Bank Building, Charlotte, N. C., according to a recent announcement. L. K. Jordan, sales manager, will be in charge of the Charlotte office, transferring his headquarters from Monticello, Ga.

Promotions in Reliance Electric Sales Force

L. M. Dunning has been advanced to sales representative of the Chicago office, and Herbert A. Holmes has been advanced to sales representative of the Pittsburgh office of the Reliance Electric & Engineering Co., Cleveland, manufacturers of alternating current and direct current motors.

Executive Personnel of E. F. Houghton & Co.

At the quarterly meeting of the stockholders of E. F. Houghton & Co., Philadelphia, Pa. (manufacturers of oils and leathers for the industries), L. E. Murphy was re-elected president. The following were elected directors: L. E. Murphy, Major Aaron E. Carpenter, G. W. Pressell, Dr. R. H. Patch, Miss M. M. Menningen, H. B. Fox, W. A. Buechner, J. Blair Moffett and C. H. Butler.

At the annual meeting of the board of directors, which followed immediately after, the following officers were elected: first vice-president and treasurer, Maj. A. E. Carpenter; second vice-president and secretary, G. W. Pressell; assistant secretary, C. P. Stocke; assistant treasurer, Miss M. M. Menningen.

The following were elected members of the executive committee: L. E. Murphy, Maj. A. E. Carpenter and G. W. Pressell.

E. F. Houghton & Co., paid their customary service bonus to employees for the year 1930. The total amount paid out was $21,978. The bonus is based on a sliding scale, 2% of the total wages for the first year, 3% for the second year, and up to 8% from the tenth year on.

English Textile Machinery Firms Merge

Hall & Stells, Ltd., and Prince Smith & Son, Ltd., English textile machinery manufacturers, specializing in worsted spinning equipment, have merged by the formation of a new company called Prince-Smith & Stells, Ltd., which took over the business of the two firms as of March 20. The registered office of the new company is Burlington Shed, Keighley, England. The capitalization is £400,000. It is stated that the new company is jointly under the same control as its two components have been.

Lincoln Electric Chicago Office in New Location

The Lincoln Electric Co., Cleveland, Ohio, manufacturers of "Stable-Arc" welders and "Linc-Weld" motors have removed their Chicago office to a new building at 1455 West 37th Street, from 53 West Jackson Blvd. This move is made to provide additional space for the sales and service of Lincoln "Stable-Arc" welders, "Linc-Weld" motors, and to provide additional storage space for a complete stock of welders, welding supplies and accessories.

William A. Hamann Retires from Roessler & Hasslacher Chemical Co.

A career of almost half a century in the chemical manufacturing industry was brought to a close with the recent retirement of William A. Hamann, as chairman and director of the Roessler & Hasslacher Chemical Co., Inc., New York, N. Y. Retirement was due to a desire to give up active business.

In 1885 Mr. Hamann joined Roessler & Hasslacher, as the present company was then known. His early years with the company were spent in the business department. He was successively secretary, treasurer, vice-president, and in 1926, president of the company. In the early part of 1928, Mr. Hamann became chairman of the board.

Changes in Industrial Chain Division of Morse Chain Co.

F. C. Thompson, vice-president and general manager of the Morse Chain Co., Ithaca, N. Y., announces the appointment of Walter W. Bertram as sales manager of the industrial chain division. Mr. Bertram who has been with the Morse Chain Co. for 18 years, has been manager of the New York office for the last 8 years.

In announcing Mr. Bertram's appointment, Mr. Thompson also announces the appointment of A. B. Wray, former sales manager, to the position of chief engineer in charge of all industrial chain engineering.

The appointment of R. W. Appleton as purchasing agent at Ithaca, N. Y., was also announced. Mr. Appleton was formerly director of purchases of Pierce Arrow Motor Car Co.

NEWS about MEN

✦ W. T. JOYCE has resigned his position as president and general manager of the Slater Co., Inc., Webster, Mass., on account of ill health. He was formerly president of the U. S. Finishing Co. and went to Webster six years ago. NELSON BARLOW, vice-president and superintendent, will act as manager pending the election of Mr. Joyce's successor.

✦ H. L. SHUTTLEWORTH, president of the Mohawk Carpet Mills, Amsterdam, N .Y., has returned from a sojourn in Florida.

✦ WILLIAM W. WINDLE, president and treasurer of the W. W. Windle Co., Millbury, Mass., has been reelected president of the Millbury Savings Bank. Mr. Windle has returned to his winter lodge at Pinehurst, N. C., for the Easter vacation.

✦ JULIUS W. CONE, president of Revolution Cotton Mills, Greensboro, N. C., and identified with other Cone mills, who has served as member of the Greensboro city council for the last eight years as a Democrat, announces his candidacy for re-election in the spring municipal primary.

✦ H. T. DYETT, president of the Rome (N. Y.) Wire Co., is among the newly elected directors of the New York State Economic Council.

✦ FRANCIS H. DEWEY, president of the Queensbury Mills, Worcester, Mass., observed his 75th birthday anniversary on March 23.

✦ EARLE R. STALL, of J. E. Sirrine & Co., mill engineers, Greenville, S. C., has gone on detached service with Woodward, Baldwin & Co., large cotton cloth commission merchants of New York and Baltimore, in connection with the technical end of the plants they represent. Mr. Stall has been with the Sirrine organization for many years, is a member of the firm, and during this period of detached service will still be actively connected with the Sirrine company.

✦ WILLIAM H. CADY, of the Slater Co., and President E. W. Pierce of the Ciba Co., were the speakers at the March meeting of the Rhode Island section of the American Association of Textile Chemists and Colorists.

✦ JOHN A. LAW, mill executive and banker, has been elected vice-president of the South Carolina Better Business Association, a non-profit cooperative organization, the aim of which is to promote using South Carolina products and advertising the State.

✦ J. T. HEDRICKS, JR., Lexington, N. C., vice-president, Neely-Travora Mills, Inc., York, S. C., has been elected president of that company, succeeding J. T. HEDRICKS, SR. E. B. LOWRY, of York, was named vice-president, while J. E. JOHNSON will continue as secretary and treasurer.

✦ JULES L. FOREMAN, who last month announced his resignation as vice-president of the Onondaga Silk Co., has been elected vice-president of the Worcester (Mass.) Silk Mills Corp., recently taken over by Ford, Bacon & Davis. He will be in charge of operations and sales, having his headquarters in New York. The following officers, in addition to Mr. Foreman, were elected: B. C. MILNER, president (Mr. Milner is also president of the Onondaga Silk Co., Inc.); S. C. STIVERS, of New York, vice-president; CHARLES L. HARPER, also of New York, treasurer.

Frederick H. Bishop, widely known in the textile industry and vice-president of the Universal Winding Co., Boston, Mass., celebrated his 82nd birthday on March 30. Mr. Bishop is in excellent health and continues to take an active part in the affairs of the company with which he has been connected for more than 40 years.

✦ R. E. HIGHTOWER, JR., of the Hightower textile mills, Thomaston, Ga., recently resigned as a member of the Georgia state legislature.

✦ MISS MARY HARDEMAN, of Commerce, Ga., niece of Gov. Hardeman, has been appointed to represent the State of Georgia at the Cotton Festival which will be held at Anderson, S. C., April 9 and 10.

✦ THOMAS H. JOHNSON, technician in knitting, and H. P. KIENAST, technician in weaving, have been added to the staff of American Bemberg Corp. Mr. Johnson was formerly with American Glanzstoff Corp. and Mr. Kienast was for 14 years associated with the late Carl Schoen Silk Corp. H. G. SPITZER has been transferred from the order department to the sales department.

✦ W. I. BENSON has concluded his duties as advertising manager for the Seamans & Cobb Thread Mills, Hopkinton, Mass., and returned to Bridgeton, Ind.

✦ ARTHUR C. PORT, sales manager of P. H. Hanes Knitting Co., Winston-Salem, N. C., for the last eight years, was last week elected vice-president of the company. SPENCER B. HANES, who has been general superintendent of the company's plants for some time, was also elected a vice-president.

✦ A. FERGUSON MACINTYRE, formerly general manager of the Fitzgerald (Ga.) Cotton Mills, has been named manager and superintendent, Cartex Mills, Inc., Salisbury, N. C., which was recently organized to take over and operate Vance Cotton Mills of that city.

✦ J. J. KREHBIEL, textile machinery importer, New York, returned to his desk recently after a trip abroad during which he visited a number of important industrial centers. He was away several weeks.

✦ R. C. THATCHER, assistant general manager of the Standard-Coosa-Thatcher Co., Chattanooga, Tenn., accompanied by S. M. GAMBLE, recently inspected the plant of the Sauquoit Spinning Co., at Huntsville, Ala., owned and operated by the Standard-Coosa-Thatcher Co.

✦ WINFRED M. MITCHELL, of Harrisburg, Ga., has been awarded the medal of the National Association of Cotton Manufacturers for the best scholastic record in the four-year course offered by the French Textile School at the Georgia School of Technology, according to Hibbard S. Busby, director of the school. The medal will be presented at Honor Day, April 16.

✦ ALBERT PALMER, head of the Research Department of Crompton & Knowles Loom Works, Worcester, Mass., will deliver a series of lectures at the State College Textile School, Raleigh, N. C., April 13.

✦ ROBERT J. ADAMS, formerly night superintendent of the Hightower Mills, Thomaston, Ga., is now specification expert, and in charge of the order department of the Hightower Mills at Thomaston, Barnesville, and Griffin, Ga.

✦ JOHN L. GREEN, of Taftville, Conn., is now superintendent of Edwards Mfg. Co., Augusta, Me., succeeding JAMES A. ANDREWS, who had been connected with the mill for four years. Mr. Green was formerly connected with the Ponemah Mills, where he was in charge of the carding department.

✦ ARTHUR MULLEN, superintendent of the Maine Woolen Co. mill, at Camden, Me., has accepted a position as manager of a woolen mill at Concord, Mass.

✦ C. A. ROBINSON, who has been superintendent of the Bedford (Va.) woolen mills of the Hampton Looms, Inc., has resigned. ROLAND WERNER, who will succeed Mr. Robinson, has arrived in Bedford to take up his duties.

✦ WILLIAM P. SHAW, who has been connected with the Kerr Mills of the American Thread Co., Fall River, Mass., for the last 36 years and as superintendent for about 15 years has tendered his resignation to take effect on April 1. Mr. Shaw's successor has not been named by it is expected that THOMAS TOMLINSON, who has been assistant superintendent at the plant for the last nine years will be given the position.

✦ J. H. SHERIDAN, formerly superintendent of A. V. Morris & Sons, Amsterdam, N. Y., has taken a similar position with the Electric Knitting Co., Cohoes, N. Y.

✦ FRANK L. SMITH, former superintendent of the Wyandotte Worsted Co., Waterville, Me., has been appointed agent of the Brown Mills, of the American Woolen Co. at Dover-Foxcroft, Me., succeeding L. C. SAWYER, recently resigned.

✦ ARTHUR WARD has arrived in Anderson, S. C., and assumed his duties with the Gossett chain of textile manufacturing plants. Mr. Ward has been superintendent of the Brandon Corp. at Travelers Rest, S. C.

✦ ALEXANDER HARLEY, assistant superintendent of the Algonquin Printing Co., Fall River, Mass., has been named superintendent to succeed the late JOSEPH H. HINDLE.

✦ F. H. UPHAM, connected in an official capacity with the Gastonia (N. C.) Thread Yarn Mills, will become assistant superintendent of the Grove Mills' new finishing and dyeing plant in that city.

✦ A. MARSHALL MOSELEY, draftsman for the Hightower group of mills, at Thomaston, Barnesville, and Griffin, Ga., has been promoted to chief technical engineer of the same mills. Mr. Moseley is a graduate of the textile engineering course of Georgia Tech.

✦ JAMES POPLIN is now overseer of the cloth room and finishing department of the Hannah Pickett Mill No. 1, Rockingham, N. C.

✦ R. W. HURD, formerly of Greenville, S. C., is now overseer of spinning at the Ingram Mfg. Co., Nashville, Tenn.

✦ JAMES P. HORTON, former boss carder at the Hecla mill of the American Woolen Co., Uxbridge, Mass., observed his 85th birthday anniversary at his home in that town on March 28. He is a civil war veteran.

✦ E. W. HOLLOFIELD has been made head of both night carding and spinning at the Hall-Kale Mfg. Co., Troutmans, N. C.

✦ E. E. EDMONDSON is now master mechanic at the Mooresville (N. C.) Cotton Mills.

✦ EDWIN P. PETERS, overseer of finishing for the last ten years at the Brown Mills, of the American Woolen Co., Dover-Foxcroft, Me., finishes his duties there this month, and will be succeeded by CARL BASSETT.

✦ P. B. READING has accepted the position of overseer of the cloth room of the Cornelius (N. C.) Cotton Mill.

✦ W. R. ROBBINS is now master mechanic at the Gem Yarn Mill, Cornelius, N. C.

✦ EX-MAYOR CHARLES S. TUTTLE, JR., Westbrook, Me., has been forced by ill health to resign his position as overseer of the spinning, spooling and warping departments of the Dana Warp Mills, a position he has held for 30 years. Mr. Tuttle came to Westbrook from New Bedford, Mass., where he was overseer in the New England Cotton Yarn Mills. He was also for a time overseer at the Tremont and Suffolk Mills in Lowell, Mass.

✦ ROBERT DYSON has resigned as automatic loomfixer for the Daniels Mfg. Co., East Brookfield, Mass., to accept the position of boss weaver at the Salisbury Mills, Inc., Manchaug, Mass.

✦ FRED W. WENZEL, Long Beach, Calif., has accepted a position as overseer of carding and spinning with the Cleveland (Ohio) Worsted Mills.

Obituary

Philip O. Schleussner

Philip O. Schleussner, aged 53 years, first vice-president of the Roessler & Hasslacher Chemical Co., Inc., New York, and an active figure in the drug and chemical industry for over 25 years, died on March 21 at his home in Stamford, Conn. He was born in Brooklyn, N. Y., on Sept. 6, 1878. Following a few years of work in the textile industry, he joined the Heyden Chemical Works, New York. He left this company in 1906 to take charge of the platinum division of the Roessler & Hasslacher Chemical Co. In 1928, he became first vice-president. Mr. Schleussner was also an official and director in other associated companies of R. & H., including the Perth Amboy Chemical Works division, the Cia Mexicana de Productos Quimicos Roessler & Hasslacher, and the Niacet Chemicals Corp. Mr. Schleussner was a member of the Oxridge Hunt Club, the Lotos Club of New York, the New York Athletic Club, Woodway Country Club, the National Republican Club, and the Chemists' Club. At the time of his death he was treasurer of the Manufacturing Chemists' Association.

John E. McGinnes

John E. McGinnes, general manager and treasurer of the Central Warp Co. of Pawtucket, R. I., died at his home in that city on Sunday March 28, at the age of 77 years. Mr. McGinnes was born in Herefordshire, England. He came to this country in 1881 settling in Westbrook, Me., for two years before going to Pawtucket, R. I. He was superintendent of the Lorraine Mfg. Co. for 15 years, after which he founded the Solway Dyeing & Textile Co. in Westerly, R. I., which shortly afterward moved to its present plant in Pawtucket. He remained with this firm until 1910, when he organized the Central Warp Co. of Pawtucket, R. I., continuing as treasurer and manager until his death. Mr. McGinnes was an authority on weaving and the preparations of yarns. He was a member of the Park Place Congregational Church of Pawtucket, Franklin Lodge F. and A. M. of Westerly as well as a member of Lodge I.O.R.M., Clan Fraser Order of Scottish Clans and Saint Andrew's Chapter of Pawtucket, R. I. Burial was in the family lot in Moshassuck Cemetery. He is survived by his widow, two sons and two daughters.

Robert Woodruff Van Tassel

Robert Woodruff Van Tassel, aged 60 years, mechanical superintendent of the Pepperell Mfg. Co.'s mill at Lindale, Ga., died suddenly at his home there on the afternoon of March 26. He was at his desk in the mill that morning, apparently in his usual good health. Mr. Van Tassel was born in Newark, N. J. and educated in New England. He went to Lindale from Lowell, Mass., in 1912, and was an important factor in the expansion of the Pepperell mills there. He took active interest in civic affairs and was commissioned a lieutenant-colonel as member of Governor Hardwick's staff during Mr. Hardwick's two terms in office. Mr. Van Tassel had recently been elected a member of the Floyd County Board of Commissioners of Roads and Revenues. He is survived by his widow and three sons. He was active in several fraternal orders and member of the board of stewards of the local Methodist church. Funeral was held last Saturday.

Rufus P. Roberts

Rufus P. Roberts, for 40 years secretary and treasurer of the Cherokee Mill, at Cherokee Falls, S. C., died at his home at Grover, S. C., March 22, at the age of 81. He had been sick two weeks with pneumonia. Mr. Roberts built the Cherokee Falls mill in 1876, with J. A. Deal, his brother-in-law. They operated it successfully until a few years ago, when the plant was sold and now operated by the Henrietta mills. Mr. Roberts retired and moved to Grover, where he had made his home for the last ten years. The former mill executive was born and reared in Gaston County, North Carolina, but spent much of his life in South Carolina. He is survived by one brother, J. T. Roberts, of Richmond.

Jacob Y. D. Fry

Jacob Y. Dietz Fry, a director of Hardwick & Magee Co., Philadelphia, died suddenly March 26 at the age of 43 years. Mr. Fry was in charge of the spinning plant of this firm at Main & Harvey Sts., for years, and was the son of George Fry who managed the company's retail store in Philadelphia. Beside his widow, he leaves his mother, two children, and a sister. Mr. Fry was a member of the Union League and the Old York Road Country Club.

Andrew McLean

Andrew McLean, Sr., head of Andrew McLean Co., Passaic, N. J., died March 26, in his seventieth year. Mr. McLean had been head of the business for more than 40 years and was the third generation to head the firm which was established by his grandfather in New York in 1806. The company was moved to Passaic in 1889. He served two terms as mayor and through him many civic improvements were started. Surviving him are his widow, one brother, two sons and two daughters.

F. A. M. Cuppen

F. A. M. Cuppen, aged 39 years, chief textile engineer of the American Enka Corp. plants at Enka, N. C., died March 19 after an illness from pneumonia. His body will be taken to his native home in Holland for burial. He is survived by his widow and six children.

J. Lansing Crouse

J. Lansing Crouse, aged 49 years, secretary of the Oak Knitting Co., Syracuse, N. Y., died March 25 in Tampa, Fla., while on a southern motor tour.

NEWS about MILLS

Cotton

***Lancaster Mills,** Clinton, Mass., in liquidation. The directors of the corporation, at a meeting held in Boston on March 27, voted to accept the offer of the citizens of Clinton for the property. The deeds were passed this week. The new owners plan to divide the big plant into five units and rent them. One of the units, the Amory mill, already has been taken by a publishing company as a branch plant, according to report.

American Printing Co.'s (Fall River, Mass.) No. 3 plant of the cotton goods division resumed operations March 27 and plants No. 4 and 5 reopened March 30. The entire division, with the exception of No. 1 mill, is in operation, as the No. 2 mill resumed operations several weeks ago.

Conanicut Mills' (Fall River, Mass.) creditors, headed by Adam W. Gifford, have petitioned the Superior Court for permission to sell the mill property as a whole or in parts. Receivers have had recent offers, it is said. The matter is up for a hearing April 1. Creditors have tried to interest the Massachusetts Thread Co. in the property.

West Boylston Mfg. Co., Easthampton, Mass., has awarded to the American Wrecking Co., Springfield, Mass., a contract to demolish and remove its No. 2 mill, adjacent warehouse and bridge connecting mills Nos. 2 and 3. The No. 2 mill, a four-story structure with three-story ell, had been in disuse for some time. On March 28 the company closed down its mills for an indefinite period.

Granite Mill No. 1, Fall River, Mass., has leased 25,000 sq.ft. of floor space to the York Mfg. Corp. for the manufacture of shirts.

Pacific Mills, Dover, N. H., are running on a full-day schedule, with night shift averaging about 20% of capacity, and expect to hold to this basis for some weeks to come.

Harmony Mills, Cohoes, N. Y., sateens, twills, shirtings, etc., have started up 500 additional looms.

***Pisgah Mills, Inc.,** Brevard, N. C., operating the plant of **Sapphire Cotton Mills,** resumed operation March 30 with practically all former employes back on the payroll and H. E. Ervin acting as superintendent, E. W. Montgomery, president, announced.

Mooresville (N. C.) Cotton Mills, manufacturers of handkerchief cloth, flannels, sateens and towels, are operating 1,100 of their 1,784 looms on towels and napped goods. This plant maintains 57,872 spindles.

Sherwood Tapestry Mills, Inc., Burlington, N. C., is in process of organization and charter has been applied for the new concern which will lease approximately 40,000 sq.ft. of floor space in buildings of the **Aurora Cotton Mills** on Webb Avenue. According to J. Spencer Love, general manager of the Burlington Mills group, who is interested in the new project, it is expected that the initial installation of 168 Jacquard and 150 plain looms will be in full operation by July 1. It is estimated that 300 operatives will be required when the new enterprise reaches full production. Heavy drapery fabrics, furniture upholstery materials and tapestries will be manufactured by the new company which will increase the payroll of the Burlington Mills "group of plants" to approximately $40,000 weekly. In addition to Mr. Love, certain New York interests are connected with the project, while it is understood that M. B. Smith, M. B. Smith, Jr., Col. Eugene Holt and T. H. Burkhardt, all of Burlington, will be identified with the corporation.

Ellenboro (N. C.) Mfg. Co. will purchase 28 new looms and dyeing equipment, in addition to other equipment which was recently installed. The expansion program was authorized at the annual meetings of stockholders and directors held in Ellenboro March 21.

Manville-Jenckes Co., Loray Division, Gastonia, N. C., after running for several months on a heavily curtailed schedule, is now operating on a five and one-half day daylight schedule with about 50% of the plant's equipment in operation.

Hickory (N. C.) Weavers, Inc., have plans looking toward an increase in capitalization and eventual enlargement of the plant, according to an announcement following the stockholders and directors meetings March 20. George E. Bisanar is president of the company which is engaged in the manufacture of draperies and upholstery fabrics.

Cartex Mills, Inc., Salisbury, N. C., has been granted a charter with authorized capitalization of $500,000. M. M. Rudisill, Lincolnton, N. C.; Carl A. Rudisill, Cherryville, N. C., and J. S. P. Carpenter, of Salisbury, were the incorporators. Stock subscribed amounts to $105,000. Buildings and machinery of the old **Vance Cotton Mills,** of Salisbury, are undergoing repairs and the new company expects to begin operations in a short time.

Appleton Co., Anderson, S. C., will place contracts for extensive improvements and repairs amounting to more than $150,000 next week, according to a recent report. Bids are being received by J. E. Sirrine & Co., Greenville, S. C., engineers.

Globe Mfg. Co., Gaffney, S. C., which was placed in bankruptcy several months ago, was recently sold by Henry C. Moore, trustee, to Alfred Moore, Wellford, S. C., and associates. The sale price was $20,100 and has been confirmed. The plant is equipped with 5,600 spindles.

Wool

***Channing Smith Textile Corp.,** Cherry Valley, Mass. The first meeting of the bankrupt's creditors will be held before the referee in bankruptcy in Worcester, Mass., on April 2 to elect a trustee. The referee heard the petition of the receiver, Joseph Talamo, for authority to sell some of the real estate owned by the corporation in Worcester, on March 28. The referee authorized the receiver to sell at either private sale or public auction all or any part of the real estate in his discretion. A date for the sale will be set later.

Beaver Brook Mills of the **American Woolen Co.,** Lowell, Mass., have developed a capacity schedule on a special blanket order, and will hold to this basis for several weeks.

A. D. Ellis Mills, Inc., Monson, Mass., have given contract to the Adams & Ruxton Construction Co., Springfield, Mass., for the erection of an addition to their No. 3 mill to house a modern filtering system.

American Woolen Co.'s mills at Webster, Mass., have been operating on full-time and recently advertised for night shift workers. **Slater Mills** at Webster have put a small number of looms on night work, and the **Charlton (Mass.) Woolen Co.,** is very busy and reports bright prospects for the future.

Hillsboro (N. H.) Woolen Mill Co., is running on a capacity schedule, with several departments on an overtime basis. Conditions are said to be favorable for continuance on this schedule.

Riverside Mill of the **American Woolen Co.,** Lebanon, N. H., has reopened and is running day and night to handle a large yarn order, and **Mascoma Mills** also in Lebanon, have increased from part-time to running day and night shifts.

Bigelow-Sanford Carpet Co., Amsterdam, N. Y., has increased operations and is now running near capacity.

***Asheville (N. C.) Weavers, Inc.,** are selecting a site in the suburban section of the city for their proposed new local mill, and expect to have plans drawn for the initial unit in the near future.

St. George Woolen Mills, Ltd., St. George de Beauce (Que., Can.), Henry Hamer & Sons, woolen manufacturers, Ravensthrop, near Dewsbury, Eng., have purchased the plant and equipment of this mill, which was organized two years ago by Edouard Larcroix. The mill, which consists of a three-story building, has been manufacturing blankets, tweeds,

**Indicates previous mention of project.*

mackinaws, overcoatings, etc. The new owners will make woolen costume cloths, tweeds, overcoatings, mantlings, etc.

Knit

Shaw Stocking Co., Lowell, Mass., was sold at auction March 26, exclusive of the printing and box shops. No bid was made for the large Mill No. 4. Mill No. 1 was sold to the Grossman Lumber Co., Inc., Billerica, Mass., for $2,800. Several lots of land brought $2,200.

Eday Fabrics, Inc., North Bergen, N. J., manufacturer of knitted rayon goods, heretofore occupying former mill of the Migal Silk Co., Boulevard, have leased space in the building at 220 Seventeenth St., West New York, N. J., and will operate a mill at that location.

***Conway Knitting Mills**, Oswego, N. Y., have been disposing of idle machinery since operations were suspended early last year and the plant is now said to be on the market.

Electric Knitting Co., Inc., Cohoes, N. Y., has opened a new department for the production of rayon garments and its force is being enlarged.

Soumerco Knitting Co., Tryon, N. C., will install additional machinery and employ at least 50 new workers. The Tryon concern's expansion program calls for the installation of 80 knitting machines and also other machines necessary to finish the products of these machines. Some of this machinery will include 25 loopers, six or eight sewing machines, more dye equipment, etc. The new machinery is expected to arrive in time to begin operation this week.

Princeton (W. Va.) Hosiery Mill Co.'s plant has been sold at public sale for $35,000, to L. G. Bowling, acting for a new corporation to be known as the **Knit-Rite Hosiery Mill Co.** The new company will start operating this month, it is stated. The plant is equipped with 95 seamless hosiery knitting machines.

Landers, Ltd., Mt. Dennis (Ont., Can.) hosiery manufacturers, have been given permission by the Ontario Government to change their name to **Weldrest Hosiery, Ltd.** The head offices will be moved from Guelph to Mount Dennis.

Silk

***Manhasset Mfg. Co.**, Putnam, Conn. A Mystic, Conn., silk throwing company is said to be the lessee of Mill No. 3, and it will use an entire section of the mill. Removal of machinery and other equipment has already been started and when completed operations will begin with about 80 employees.

American Weavers, Inc., Grafton, Mass., have been incorporated with a capital stock of $200,000 to make fabrics and decorative materials of all kinds. The officers and directors of the corporation are: President, Walter L. VanKleeck; treasurer, Alexander Wheeler, Boston; and Ernest G. Angevine.

**Indicates previous mention of project.*

L'Heureux Silk Mill will move from Williamstown, N. J., to Philadelphia, Pa., corner of Amber & Hagert Sts., April 15, and will be in full operation shortly.

Giltex Fabrics Co., Pawtucket, R. I., recently organized with a capital of $50,000, will take over and operate company of same name, with local mill for production of broad silks. Gilbert Pansy heads the new organization.

***Berizzi Bros. Co. of Tenn., Inc.**, Erwin, Tenn., will equip its new mill addition, now under way, for the production of crepe yarns, and expects to have the unit ready for machinery installation late in April or early in May. It is estimated to cost $30,000.

Klotz Silk Mfg. Co., Blackstone, Va.—The Virginia Public Service Co., Charlottesville, Va., has tendered an offer for the local mill of this company, which has been under receivership since last summer. It is expected to close the sale of the property at an early date, with expectations of resumption of operations.

Rayon

Tennessee-Eastman Corp., Kingsport, Tenn., a subsidiary of the Eastman Kodak Corp., Rochester, N. Y., has given order to the Converse Bridge & Steel Co., Chattanooga, Tenn., for 135 tons structural steel for the new cellulose plant.

Finishing

Radiance Piece Dye Works, Paterson, N. J., have awarded general contract to Richard Southman, Paterson, for a one-story addition, 60x98 ft., to be equipped as a drying room, with portion of unit given over to shipping department.

Reliance Piece Dye Works, Inc., Paterson, N. J., have taken out a permit for a one-story dye house, 42x80 ft., to cost about $13,000, with equipment. Elliott R. Coe, 136 Washington St., Paterson, is architect.

Shulze Dyeing Co., Inc., Reading, Pa., was sold on March 28. The sale of personal property realized about $500.00. **Neversink Dyeing Co.** and **Reading Maid Hosiery Co.**, both of Reading, Pa., were the chief purchasers.

Miscellaneous

Wallaceburg (Ont., Can.) Textile Co., Ltd., commenced business recently in the building formerly occupied by the Wallaceburg Glass Co. Fifteen girls and two instructors will comprise the staff for the present.

Athens, Ga. G. L. Upchurch & Son have begun operating the **Bogart (Ga.) Tape & Processing Co.** near here, manufacturing jacquard lacing, tie tape and other braided material. The New England Butt Co., Providence, R. I., furnished and installed the equipment in the new industry.

New Books

THE MARKETING OF WOOL; By A F. DuPlessis, M.A., New York; Isaac Pitman & Sons; Price $3.75.

Mr. DuPlessis gives his subject broad interpretation, and as a result has constructed a mighty interesting analysis of wool marketing. He discusses wool production, manufacturing, preparation of wool for market and standardization of wool—always considering these subjects in their relation to his main theme of wool marketing. This inclusive method of treatment provides the reader with a picture, both broad and comprehensible, not only of wool marketing itself but of its relation to all the other major aspects of the wool industry. Control in marketing, credits, co-operative marketing, auctions are among the chief topics considered.

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ORNAMENTATION AND TEXTILE DESIGN; By Aldred F. Barker, New York; Frederick A. Stokes Co.; $5.00.

Mr. Barker, who is professor of textile industries at the University of Leeds, England, offers much original though with respect to textile design, in this up-to-date study. He compares, both in written word and illustration the differences between the mechanical and the free design, and pleads for a more vitalized type of design in the textile field. His volume offers many suggestions to the textile artist and he often explains how these suggestions can be used; the work is virtually a text-book. The 95 illustrations, including nature studies of unusual beauty, are a feature.

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KING COTTON IS SICK; By Claudius T. Murchison, Chapel Hill, N. C.; University of North Carolina Press; $2.00.

Mr. Murchison, who is professor of applied economics at the University of North Carolina, analyzes current problems of the cotton industry, both as regards output and sales, and considers possible methods of reform. Chief among the conclusions drawn by the author is the thought that progress will be found to lie "definitely in the direction of closer contact between producing units and the consuming market." He urges that in the development of cotton from the field to the counter, there should be "directness and coordination instead of indirection and conflict." The book is built to this text, and the merchandising questions are studied mainly in their relation to the problems facing the producer.

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UNEMPLOYMENT AND ADULT EDUCATION: A Symposium; Edited by Morse A. Cartwright, New York; American Association for Adult Education; Price 50c.

Technological unemployment, the need for alternative training, occupational obsolescence, and the state's responsibility in these and related questions, are considered from various viewpoints by 16 well known Americans. Contributors include: Charles Austin Beard, Paul Howard Douglas, Newton D. Baker, and Stuart Chase. An interesting feature of the volume is the concluding chapter, devoted to discussion, which contains supplementary statements on various aspects of industry, by other students of these subjects. The work is an important contribution to the growing literature on industrial education and its relation to unemployment.

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